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SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Truszk, Drc Examiner #: 69332 Date: 5/9/03
 Art Unit: 1711 Phone Number 30 8-2437 Serial Number: 10/042,360
 Mail Box and Bldg/Room Location: 31 AD29 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Either one of formula in claim 3, derived from general formula of claim 1 checks.

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	Type of Search	Vendors and cost where applicable
Searcher: <u>Ed</u>	NA Sequence (#) _____	STN <u>\$108.71</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog <u>(8) (subsets)</u>
Searcher Location: _____	Structure (#) <input checked="" type="checkbox"/> <u>(8) (subsets)</u>	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
Date Completed: <u>5-14-03</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>5</u>	Fulltext _____	Sequence Systems _____
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Online Time: <u>70</u>	Other _____	Other (specify) _____

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FILE 'REGISTRY' ENTERED AT 12:02:02 ON 14 MAY 2003
ACT TRU359/A

L1 STR
L2 SCR 2043
L3 5792 SEA FILE=REGISTRY SSS FUL L1 AND L2

ACT TRU357AU/A

L4 STR
L5 SCR 2043
L6 (5792) SEA FILE=REGISTRY SSS FUL L4 AND L5
L7 (27) SEA FILE=REGISTRY (104934-51-2/BI OR 104934-53-4/BI OR 10
L8 8 SEA FILE=REGISTRY L7 AND L6

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L10 STR L9
L11 STR

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L13 STR L11
L14 3 S L9 AND L10 AND L13 SSS SAM SUB=L3
L15 48 S L9 AND L10 AND L13 SSS FUL SUB=L3
SAV L15 TRU360/A

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L16 0 S L15

FILE 'ZCA' ENTERED AT 12:52:27 ON 14 MAY 2003

L17 40 S L15

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L18 STR

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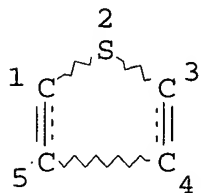
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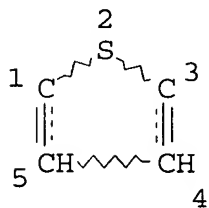
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GRAPH ATTRIBUTES:
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NUMBER OF NODES IS 5

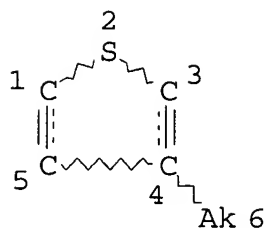
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L9 STR



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DEFAULT MLEVEL IS ATOM
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STEREO ATTRIBUTES: NONE
L10 STR



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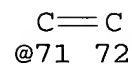
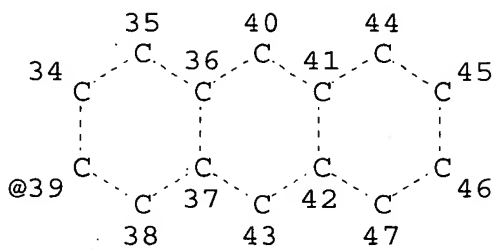
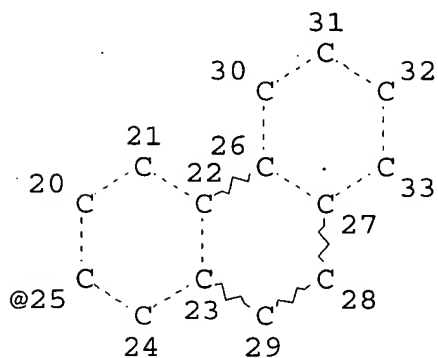
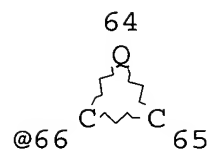
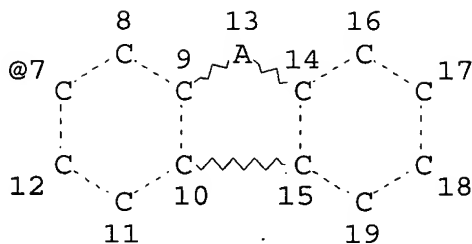
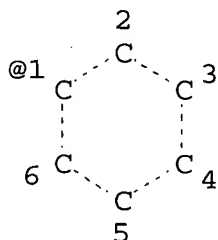
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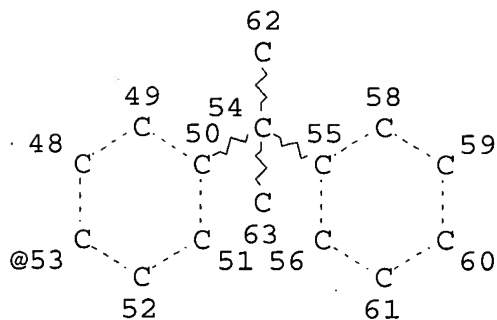
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L13 STR

G2 75





Page 2-A.

VAR G2=1/7/66/25/39/53/71

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CONNECT IS E3 RC AT 6

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 68

STEREO ATTRIBUTES: NONE

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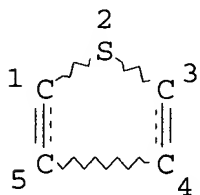
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48 ANSWERS

SEARCH TIME: 00.00.01

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L1 STR



NODE ATTRIBUTES:

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DEFAULT ECLEVEL IS LIMITED

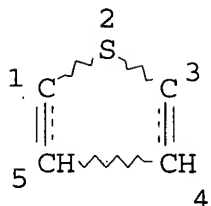
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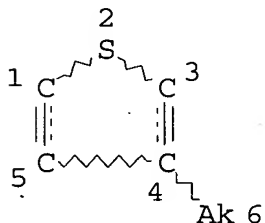
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 L3 5792 SEA FILE=REGISTRY SSS FUL L1 AND L2
 L9 STR



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 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

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 NUMBER OF NODES IS 5

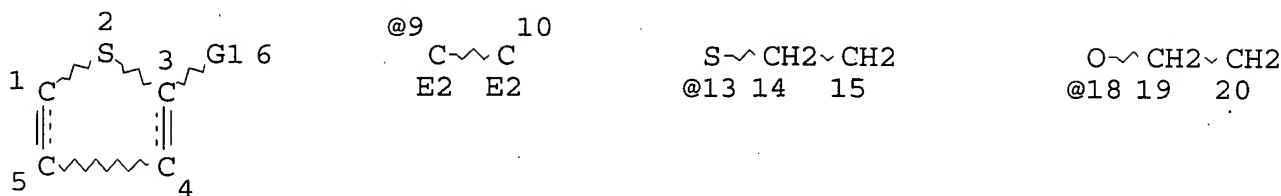
STEREO ATTRIBUTES: NONE
 L10 STR



NODE ATTRIBUTES:
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 GGCAT IS SAT AT 6
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS M5 C AT 6

GRAPH ATTRIBUTES:
 RSPEC I
 NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
 L18 STR



VAR G1=9/13/18

NODE ATTRIBUTES:

HCOUNT IS E2 AT 9
 HCOUNT IS E2 AT 10
 CONNECT IS E2 RC AT 2
 CONNECT IS E2 RC AT 9
 CONNECT IS E2 RC AT 10
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE

L20 11 SEA FILE=REGISTRY SUB=L3 SSS FUL L9 AND L10 AND L18

100.0% PROCESSED 1231 ITERATIONS

11 ANSWERS

SEARCH TIME: 00.00.01

=> file zca

FILE 'ZCA' ENTERED AT 13:19:57 ON 14 MAY 2003

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=> d l17 1-40 cbib abs hitstr hitrn

L17 ANSWER 1 OF 40 ZCA COPYRIGHT 2003 ACS

138:221998 Poly(heteroaromatic) block copolymers with electrical conductivity. Luebben Devito, Sylvia; Elliott, Brian; Wilson, Carolina (TDA Research, Inc., USA). PCT Int. Appl. WO 2003018648 A1 20030306, 55 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE,

SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US28064 20020903. PRIORITY: US 2001-PV316607 20010831.

AB The block copolymers contain .gtoreq.1 block of a poly(heteroarom.) polymer and .gtoreq.2 blocks of a nonconjugated polymer, alternately the poly(heteroarom.) block may contain latent polymerizable groups forming crosslinked networks. The chem. different blocks of the copolymer are covalently bonded to each other in an alternating fashion through an appropriate linkage group. The poly(heteroarom.) block may exist in its neutral or oxidized form, and when in the oxidized form, it assoc. with org. or inorg. counteranions to balance the charge. The poly(heteroarom.) polymer is an intrinsically conducting polymer (IPC), and when in the oxidized form it is elec. conducting. When the IPC block or blocks of the block copolymer are in the doped form, the block copolymer is elec. conducting. Preferably the conducting block copolymers have conductivities 10⁻⁶-10³ S/cm. Block copolymers are sol. or dispersible in H₂O, .gtoreq.1 org. solvents, or in a mixt. at a level of .gtorsim.0.1 g/L.

IT 500734-78-1P

(triblock, UV-crosslinked; Poly(heteroarom.) block copolymers in oxidized form with high elec. cond.)

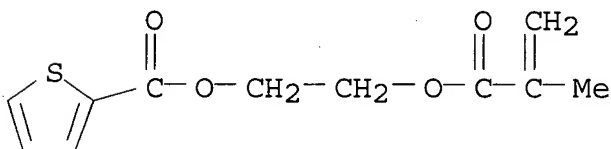
RN 500734-78-1 ZCA

CN 2-Thiophenecarboxylic acid, 2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl ester, polymer with 3-hexylthiophene, block (9CI) (CA INDEX NAME)

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CRN 500734-72-5

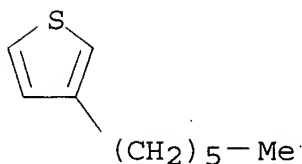
CMF C11 H12 O4 S



CM 2

CRN 1693-86-3

CMF C10 H16 S



IT 500734-79-2P

(triblock; Poly(heteroarom.) block copolymers in oxidized form

with high elec. cond.)

RN 500734-79-2 ZCA

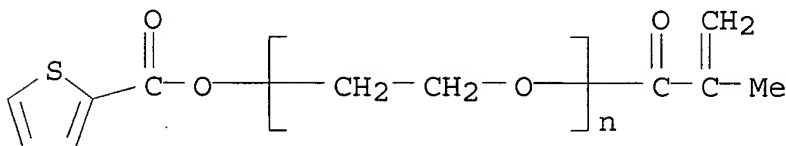
CN Thiophene, 3-hexyl-, polymer with .alpha.-(2-methyl-1-oxo-2-propenyl)-.omega.-[(2-thienylcarbonyl)oxy]poly(oxy-1,2-ethanediyl), block (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

CM 1

CRN 500734-76-9

CMF (C2 H4 O)_n C9 H8 O3 S

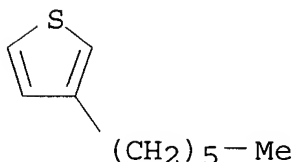
CCI PMS



CM 2

CRN 1693-86-3

CMF C10 H16 S



IT 500734-78-1P

(triblock, UV-crosslinked; Poly(heteroarom.) block copolymers in oxidized form with high elec. cond.)

IT 500734-79-2P

(triblock; Poly(heteroarom.) block copolymers in oxidized form with high elec. cond.)

L17 ANSWER 2 OF 40 ZCA COPYRIGHT 2003 ACS

138:195486 Synthesis and characterization of novel conjugated light-emitting polymers. Liu, Michelle S.; Jiang, Xuezhong; Herguth, Petra; Jen, Alex K.-Y. (Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA). Materials Research Society Symposium Proceedings, 725 (Organic and Polymeric Materials and Devices--Optical, Electrical and Optoelectronic Properties), 3-11 (English) 2002. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

AB Novel fluorene-based conjugated light-emitting polymers were designed and synthesized. By varying the compns. of the polymer backbone, the charge-injecting and -transporting properties of the polymers were significantly improved. The light-emitting diodes

(LEDs) using these polymers as the emissive layers exhibited low turn-on voltage, a high external quantum efficiency, and high brightness due to balanced electron and hole cond.

IT 498558-34-2P

(synthesis and characterization of novel conjugated light-emitting polymers for LEDs)

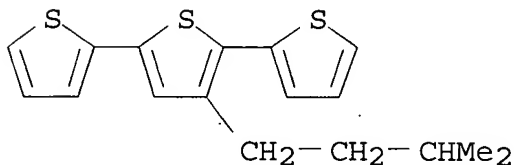
RN 498558-34-2 ZCA

CN 2,1,3-Benzothiadiazole, polymer with 9,9-dihexyl-9H-fluorene and 3'-(3-methylbutyl)-2,2':5',2''-terthiophene (9CI) (CA INDEX NAME)

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CRN 455291-32-4

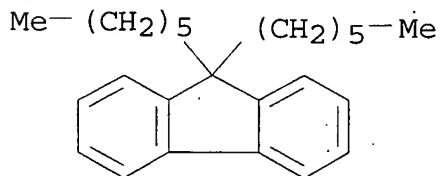
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CM 2

CRN 123863-97-8

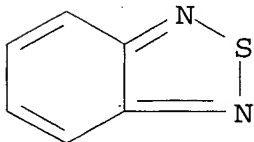
CMF C25 H34



CM 3

CRN 273-13-2

CMF C6 H4 N2 S



IT 498558-34-2P

(synthesis and characterization of novel conjugated light-emitting polymers for LEDs)

L17 ANSWER 3 OF 40 ZCA COPYRIGHT 2003 ACS

138:25040 Polyconjugated Azomethine Layers by Sequential Condensation of .alpha.,.alpha.'-Dialdehyde-oligothiophenes and 4,4'-Diamino-diphenylenes on ITO/Glass Electrodes. Zotti, Gianni; Randi, Albarosa; Destri, Silvia; Porzio, William; Schiavon, Giovanni (Istituto per l' Energetica e le Interfasi, CNR, Padua, 35127, Italy). Chemistry of Materials, 14(11), 4550-4557 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB Sequential (alternate) azomethine condensation of aldehyde end-capped oligothiophenes (Tn, n = 3, 6, and 8) with p-diaminobiphenile (DAB) or p-diaminofluorene (DAF) on 3-aminopropyltrimethoxysilane-primed (ATS-primed) ITO/glass is reported. The layers have been characterized by cyclic voltammetry, UV-vis spectroscopy, photoluminescence, XRD, and AFM. The oligothiophene layers first produced on the ATS-primed ITO are dense like ferrocene monolayers for T3 (4 .times. 10⁻¹⁰ mol cm⁻²) and ca. 3 times less dense for T6 and T8 (1.5 .times. 10⁻¹⁰ mol cm⁻²). The subsequent sequential growth occurs regularly with T3 but its rate is ca. 50% lower for T6 and almost null for T8. The condensed films are free of major defects and have the same roughness as the primed surface. Typical brush-electrodes formed by ATS/T3/(DAF/T3)₄ and ATS/T6/(DAF/T6)₂ sequences are fluorescent and reversibly protonated to colored films by perchloric acid in acetonitrile and undergo reversible iodine-doping.

IT 189148-17-2P 189148-18-3P 478187-24-5P
478187-25-6P 478187-28-9P 478187-29-0P

(polyconjugated azomethine layers by sequential condensation of .alpha.,.alpha.'-dialdehyde tri- and hexathiophenes and 4,4'-diamino-diphenylenes on ITO/glass electrodes)

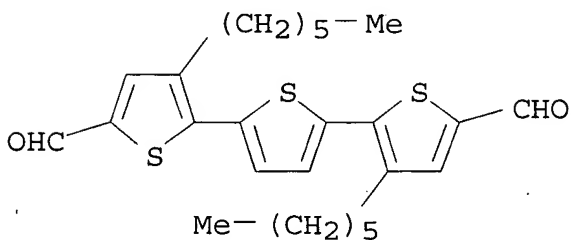
RN 189148-17-2 ZCA

CN [2,2':5',2''-Terthiophene]-5,5''-dicarboxaldehyde, 3,3''-dihexyl-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

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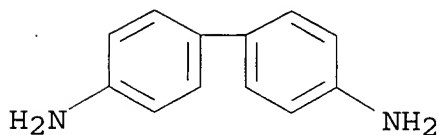
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CMF C26 H32 O2 S3



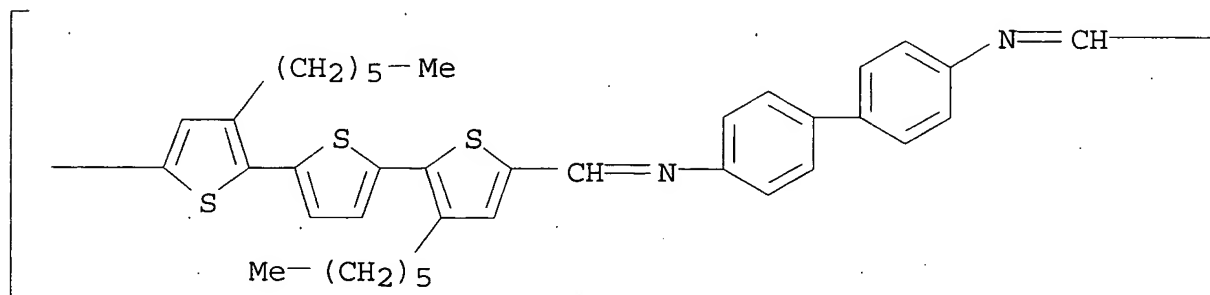
CM 2

CRN 92-87-5
CMF C12 H12 N2



RN 189148-18-3 ZCA
CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)methylidynenitrilo[1,1'-biphenyl]-4,4'-diylnitrilomethylidyne]
(9CI) (CA INDEX NAME)

PAGE 1-A



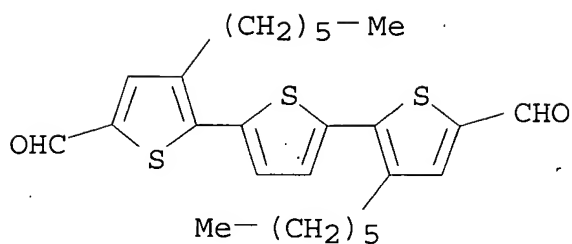
PAGE 1-B



RN 478187-24-5 ZCA
CN [2,2':5',2''-Terthiophene]-5,5''-dicarboxaldehyde, 3,3''-dihexyl-,
polymer with 9H-fluorene-2,7-diamine (9CI) (CA INDEX NAME)

CM 1

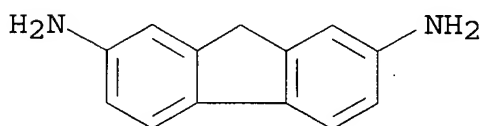
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CM 2

CRN 525-64-4

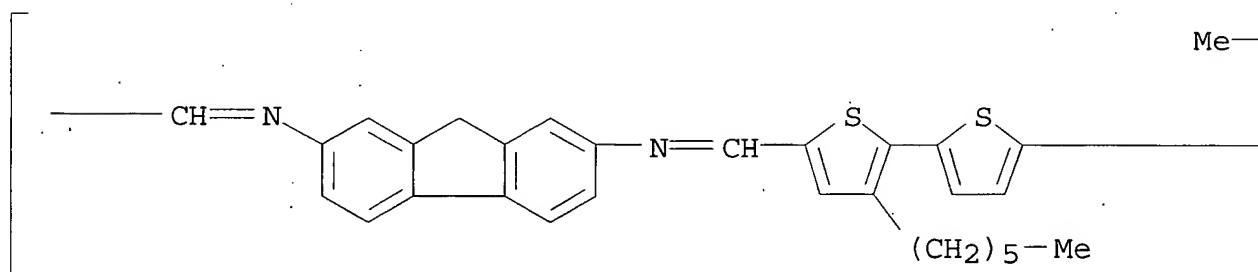
CMF C13 H12 N2



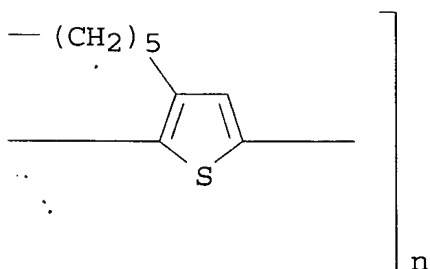
RN 478187-25-6 ZCA

CN Poly[(3,3'-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)methylidynenitrilo-9H-fluorene-2,7-diyl nitrilomethylidyne] (9CI) (CA INDEX NAME)

PAGE 1-A



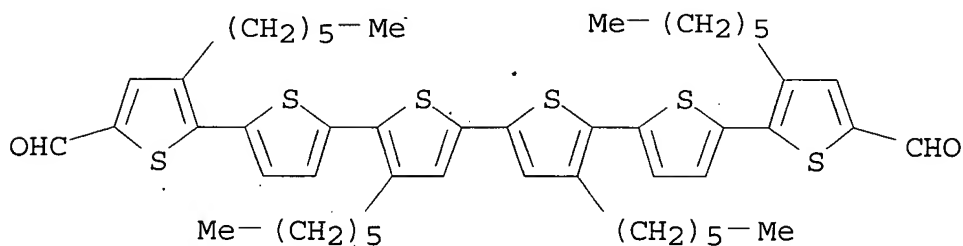
PAGE 1-B



RN 478187-28-9 ZCA
 CN [2,2':5',2'':5''',2''':5''',2''':5''',2''':5'''-Sexithiophene]-
 3,3''''-dicarboxaldehyde, 3,3'',3''''',4''''-tetrahexyl-, polymer
 with 9H-fluorene-2,7-diamine (9CI) (CA INDEX NAME)

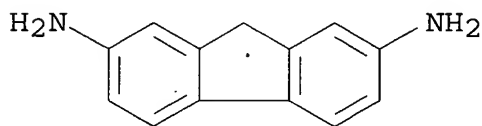
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CRN 189148-19-4
 CMF C50 H62 O2 S6



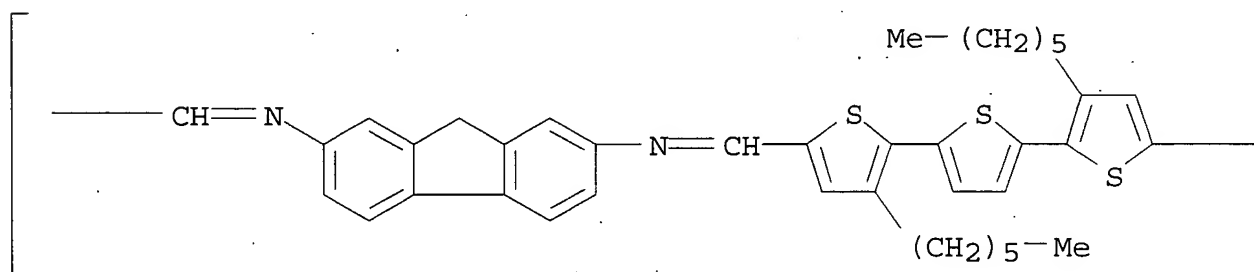
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CRN 525-64-4
 CMF C13 H12 N2

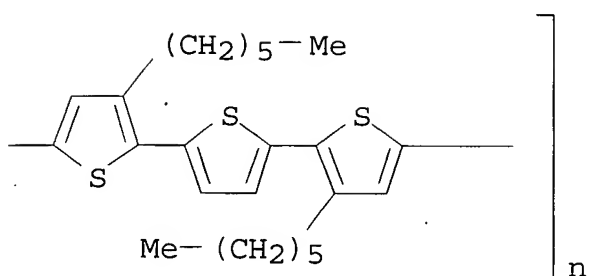


RN 478187-29-0 ZCA
 CN Poly[[3,3'',4''',3''''''-tetrahexyl[2,2':5',2'':5''',2''':5''',2''':5''':5''',2''':5''''-sexithiophene]-5,5''''-diyl]methylidynenitrilo-9H-
 fluorene-2,7-diyl]nitrilomethylidyne] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 189148-17-2P 189148-18-3P 478187-24-5P

478187-25-6P 478187-28-9P 478187-29-0P

(polyconjugated azomethine layers by sequential condensation of .alpha.,.alpha.'-dialdehyde tri- and hexathiophenes and 4,4'-diamino-diphenylenes on ITO/glass electrodes)

L17: ANSWER 4 OF 40 ZCA COPYRIGHT 2003 ACS

137:223721 Highly Efficient Fluorene- and Benzothiadiazole-Based Conjugated Copolymers for Polymer Light-Emitting Diodes. Herguth, Petra; Jiang, Xuezhong; Liu, Michelle S.; Jen, Alex K.-Y. (Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195-2120, USA). Macromolecules, 35(16), 6094-6100 (English) 2002. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB A series of highly efficient conjugated polymers have been synthesized for application in polymer light-emitting diodes (PLEDs). These polymers were based on the copolymn. between 9,9-dihexylfluorene and benzothiadiazole (BT). In several cases, a third comonomer was added to adjust the charge injecting and transporting properties of the polymers. All of these copolymers exhibited strong green emission at around 540 nm which can be attributed to either the charge transfer between an electron-rich segment and an electron-deficient BT-contg. segment of the polymers or the Foerster energy transfer between different polymer chains. These copolymers also exhibited very high photoluminescence quantum efficiencies up to 55%. A double-layer device using one of the copolymers as the emissive layer exhibited a low turn-on voltage (3.4 V), a very high external quantum efficiency (6.0%), and a high brightness of 59 400 cd/cm².

IT 455290-82-1P

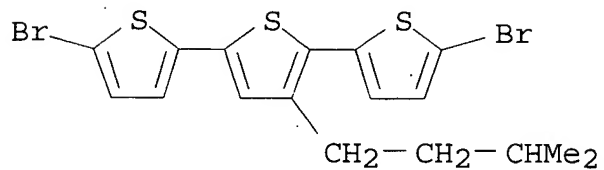
(prepn. and properties of highly efficient fluorene- and benzothiadiazole-based conjugated copolymers for polymer light-emitting diodes)

RN 455290-82-1 ZCA

CN 1,3,2-Dioxaborolane, 2,2'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis-, polymer with 4,7-dibromo-2,1,3-benzothiadiazole, 2,7-dibromo-9,9-dihexyl-9H-fluorene and 5,5''-dibromo-3'-(3-methylbutyl)-2,2':5',2''-terthiophene (9CI) (CA INDEX NAME)

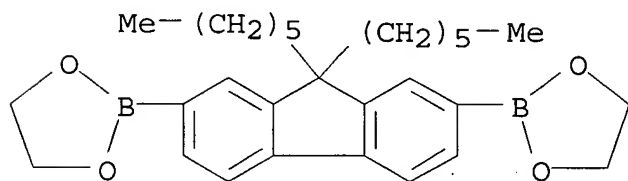
CM 1

CRN 455290-81-0
CMF C17 H16 Br2 S3



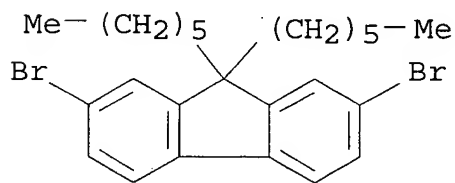
CM 2

CRN 251981-85-8
CMF C29 H40 B2 O4



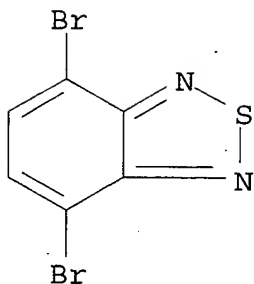
CM 3

CRN 189367-54-2
CMF C25 H32 Br2



CM 4

CRN 15155-41-6
CMF C6 H2 Br2 N2 S



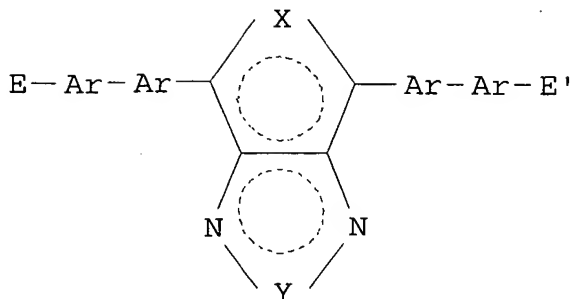
IT 455290-82-1P

(prepn. and properties of highly efficient fluorene- and benzothiadiazole-based conjugated copolymers for polymer light-emitting diodes)

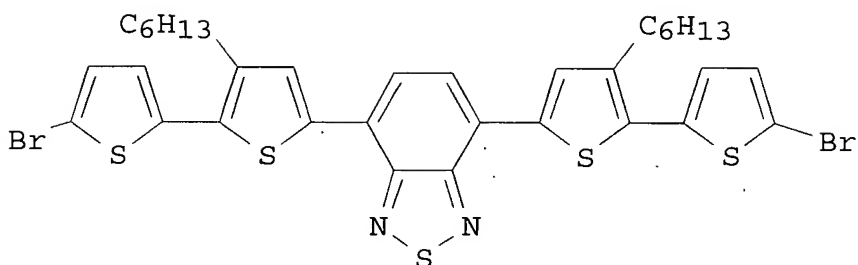
L17 ANSWER 5 OF 40 ZCA COPYRIGHT 2003 ACS

137:140902 Monomer for use in preparation of a polymer to be used in optical devices. Burroughes, Jeremy; Towns, Carl; Pounds, Thomas; Halls, Jonathan (Cambridge Display Technology Limited, UK). PCT Int. Appl. WO 2002059121 A1 20020801, 48 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-GB294 20020123. PRIORITY: GB 2001-1824 20010124; GB 2001-14538 20010614; US 2001-PV310588 20010807.

GI



I



II

AB The title monomer comprises I which may be substituted or unsubstituted: where E and E are the same or different and are reactive groups capable of undergoing chain extension; X is O, S, NR₅, R₅C-CR₆ or R₅C=CR₆; Y is O, S, NR₇, R₇C-CR₈ or R₇C=CR₈; R₅, R₆, R₇ and R₈ are the same or different and each is independently H or a substituent group; and each Ar is the same or different and is independently a substituted or unsubstituted aryl or heteroaryl group. II was prepd. and polymd. with 9,9-di-n-octylfluorene-2,7-diethyleneboronate to give a polymer useful in electroluminescent devices.

IT **444579-46-8P 444579-47-9P**

(monomer for use in prepn. of a polymer to be used in optical devices)

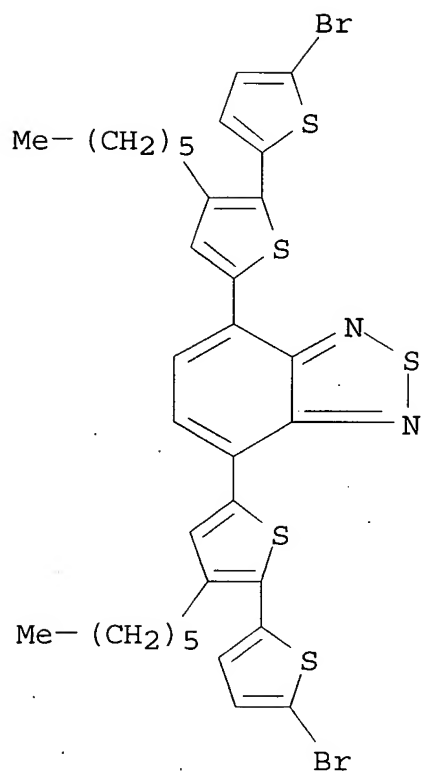
RN 444579-46-8 ZCA

CN 2,1,3-Benzothiadiazole, 4,7-bis(5'-bromo-3-hexyl[2,2'-bithiophen]-5-yl)-, polymer with 9,9-dioctyl-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 444579-41-3

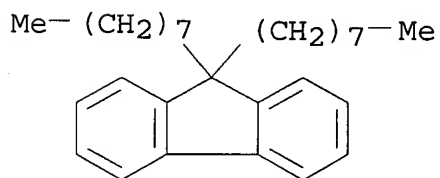
CMF C34 H34 Br2 N2 S5



CM 2

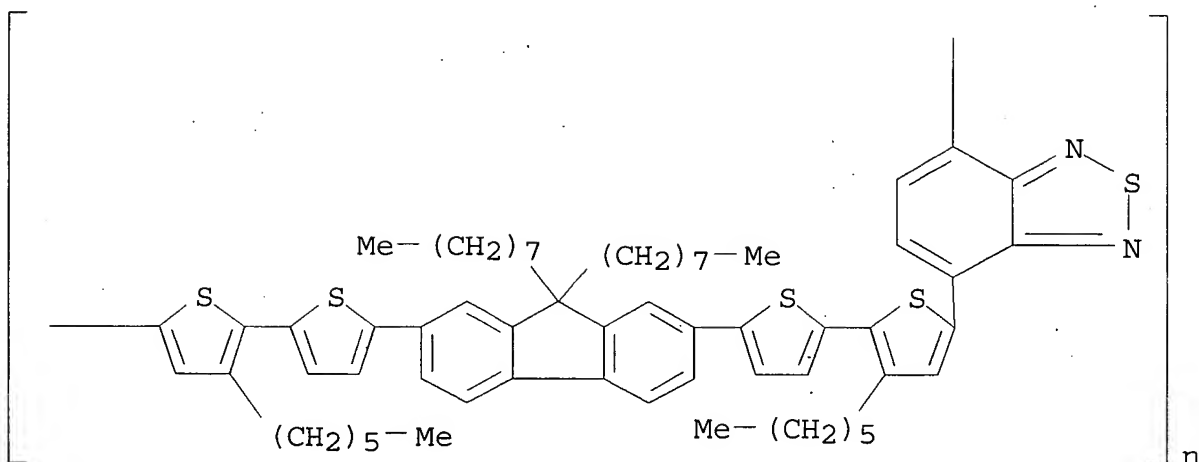
CRN 123863-99-0

CMF C29 H42



RN 444579-47-9 ZCA

CN Poly[2,1,3-benzothiadiazole-4,7-diyl(3-hexyl[2,2'-bithiophene]-5,5'-diyl)(9,9-dioctyl-9H-fluorene-2,7-diyl)(3'-hexyl[2,2'-bithiophene]-5,5'-diyl)] (9CI) (CA INDEX NAME)



IT 444579-46-8P 444579-47-9P

(monomer for use in prepn. of a polymer to be used in optical devices)

L17 ANSWER 6 OF 40 ZCA COPYRIGHT 2003 ACS

136:370224 Charge transport in .pi.-conjugated polymers from extraction current transients. Genevicius, K.; Osterbacka, R.; Juska, G.; Arlauskas, K.; Stubb, H. (Department of Physics, Abo Akademi University, Turku, FIN-20500, Finland). Thin Solid Films, 403-404, 415-418 (English) 2002. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier Science S.A..

AB The carrier transport properties, namely mobility, cond., and charge carrier concn. of regioregular poly(3-hexylthiophene) (RRPHT) and poly(3-octylthiophene) were studied by charge extn. under a linearly increasing voltage. The charge carrier transients were modeled, including a Gaussian distribution of localized states and the typical Poole-Frenkel-type field-dependent mobility obsd. in these materials, and good agreement with measured values was obtained. The field-dependent release time from the localized states, τ_R is an important factor.

IT 189148-20-7

(mechanisms of charge carrier transport in .pi.-conjugated
regioregular polyhexylthiophene and polyoctylthiophene detd. from
extn. current transients)

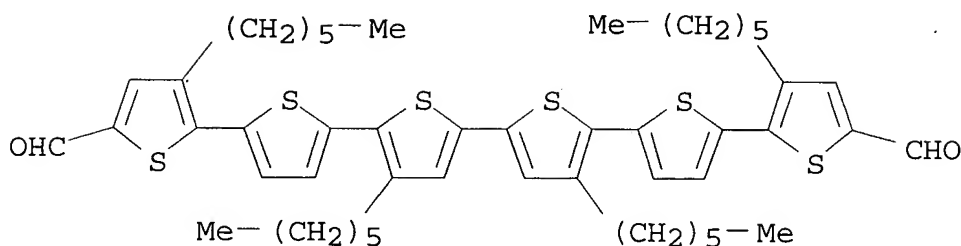
RN 189148-20-7 ZCA

CN [2,2':5'',2'':5''',2''':5''',2''':5''',2''':5'''-Sexithiophene]-
3,3''''-dicarboxaldehyde, 3,3'',3''''',4''-tetrahexyl-, polymer
with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME).

CM 1

CRN 189148-19-4

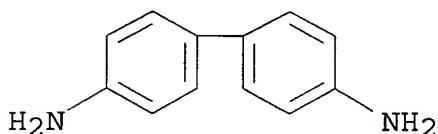
CMF C50 H62 O2 S6



CM 2

CRN 92-87-5

CMF C12 H12 N2



IT 189148-20-7

(mechanisms of charge carrier transport in π -conjugated
regioregular polyhexylthiophene and polyoctylthiophene detd. from
extn. current transients)

L17 ANSWER 7 OF 40 ZCA COPYRIGHT 2003 ACS

136:325933 Synthesis and properties of poly(aryleneethynylenes) with
hexyl-substituted oligothiophene groups. Destri, S.; Porzio, W.;
Khotina, I. A.; Botta, C.; Consonni, R. (Istituto di Chim. delle
Macromol., Consiglio Nazionale delle Ricerche, Milan, 20133, Italy).
Vysokomolekulyarnye Soedineniya, Seriya A i Seriya B, 43(11),
1899-1906 (Russian) 2001. CODEN: VSSBEE. ISSN: 1023-3091.
Publisher: MAIK Nauka/Interperiodica Publishing.

AB A series of new poly(phenyleneethynylenes) with a regular structure
were prepd. by the Pd-catalyzed condensation of dibromides and
diethynyl compds., such as the derivs. of hexyl-substituted
oligo(thiophenes), anthracene, and benzene. The structure of the
synthesized polymers was detd. by NMR spectroscopy. The optical
properties of monomers, model compds., and polymers were studied.
The polymers of interest, in particular, those contg. anthracene
units show appreciable luminescence quantum yields. The
luminescence quantum yields of the corresponding polymers are lower
than those of the monomers contg. anthracene and benzene.

IT 313698-96-3P 313698-97-4P 313698-99-6P

313699-00-2P 313699-01-3P 374775-92-5P

374775-96-9P 374775-98-1P

(poly(aryleneethynylenes) with hexyl-substituted oligothiophene
groups)

RN 313698-96-3 ZCA

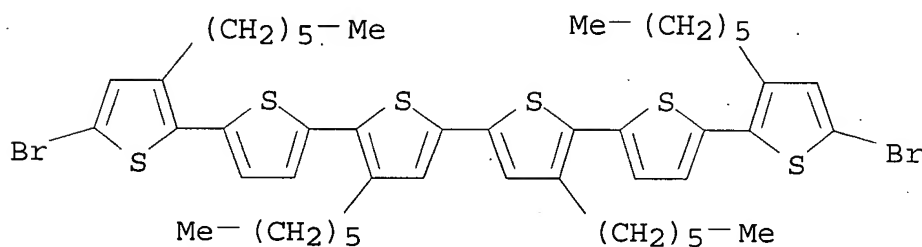
CN 2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene,

5,5''''-dibromo-3,3'',4'',3''''-tetrahexyl-, polymer with
1,4-diethynylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 313698-95-2

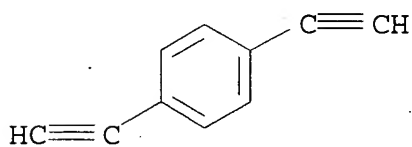
CMF C48 H60 Br2 S6



CM 2

CRN 935-14-8

CMF C10 H6



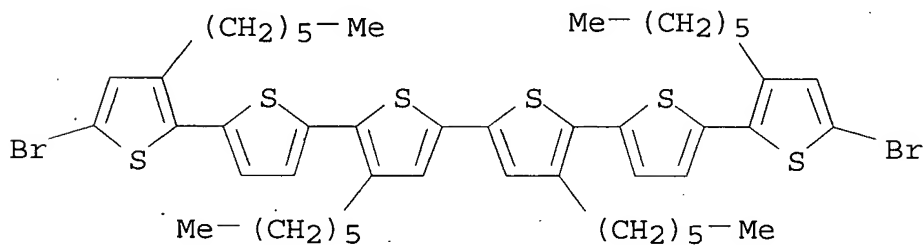
RN 313698-97-4 ZCA

CN 2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene,
5,5''''-dibromo-3,3'',4'',3''''-tetrahexyl-, polymer with
9,10-diethynylanthracene (9CI) (CA INDEX NAME)

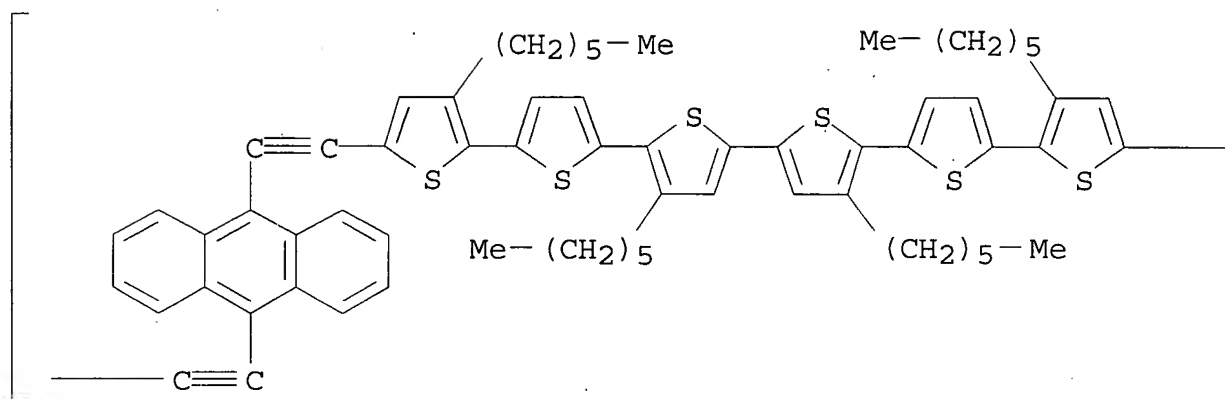
CM 1

CRN 313698-95-2

CMF C48 H60 Br2 S6



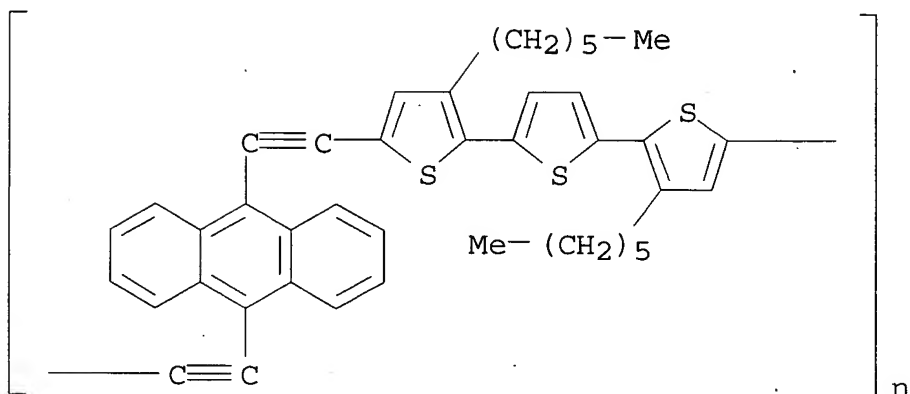
PAGE 1-A



PAGE 1-B

n

RN 313699-01-3 ZCA
 CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)-1,2-ethynediyl-9,10-anthracenediyl-1,2-ethynediyl] (9CI) (CA INDEX NAME)



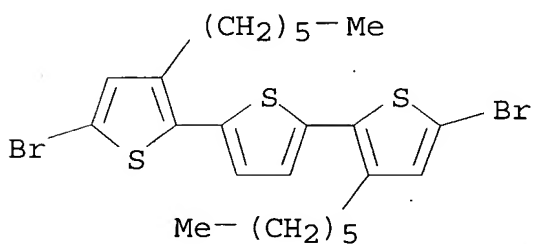
RN 374775-92-5 ZCA

CN 2,2':5',2''-Terthiophene, 5,5''-dibromo-3,3''-dihexyl-, polymer with 1,4-diethynylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 215591-73-4

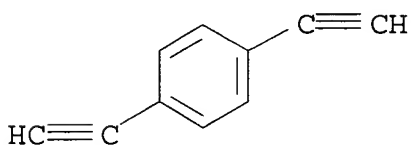
CMF C24 H30 Br2 S3



CM 2

CRN 935-14-8

CMF C10 H6

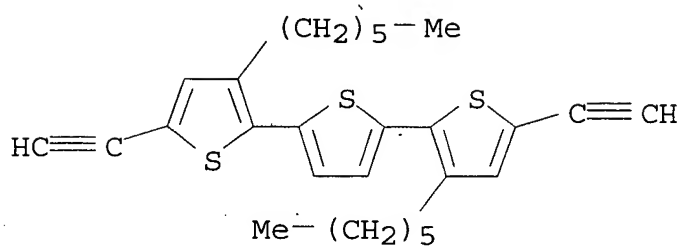


RN 374775-96-9 ZCA

CN 2,2':5',2''-Terthiophene, 5,5''-diethynyl-3,3''-dihexyl-, polymer with 9,10-dibromoanthracene (9CI) (CA INDEX NAME)

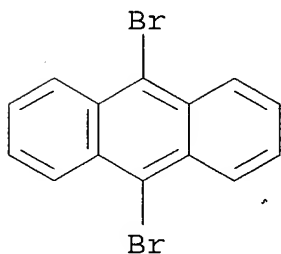
CM 1

CRN 313698-91-8
CMF C28 H32 S3

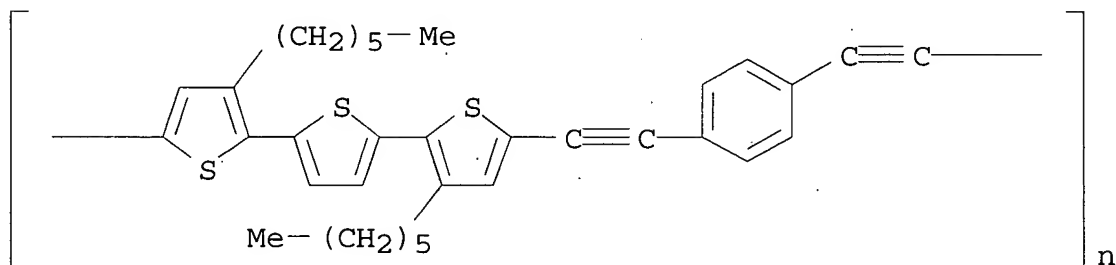


CM 2

CRN 523-27-3
CMF C14 H8 Br2



RN 374775-98-1 ZCA
CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl] (9CI) (CA INDEX NAME)



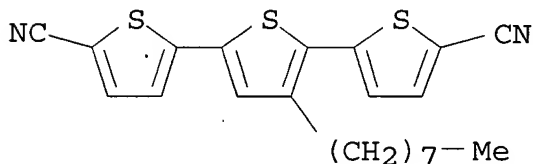
IT 313698-96-3P 313698-97-4P 313698-99-6P
313699-00-2P 313699-01-3P 374775-92-5P
374775-96-9P 374775-98-1P
(poly(aryleneethynylenes) with hexyl-substituted oligothiophene groups)

- 136:6457 Synthesis of Poly(cyclodiborazane)s by Hydroboration Polymerization of Dicyanooligothiophenes and Their Light-Emitting Properties. Miyata, Mamoru; Matsumi, Noriyoshi; Chujo, Yoshiki (Department of Polymer Chemistry, Graduate School of Engineering Kyoto University, Yoshida Sakyo-ku Kyoto, 606-8501, Japan). *Macromolecules*, 34(21), 7331-7335 (English) 2001. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.
- AB Hydroboration polymn. of dicyanooligothiophenes bearing various nos. of thiophene repeating units gave the corresponding .pi.-conjugated poly(cyclodiborazane)s having oligothiophene units, and their light-emitting properties were studied. The polymn. was carried out by adding a THF soln. of mesitylborane (or tripylborane) to a suspension of dicyanooligothiophene monomer in THF at room temp. under nitrogen. The reaction mixt. was stirred overnight, and the polymer was isolated by repptn. as a powder. These polymers were sol. in common org. solvents such as THF and chloroform, and stable under air and water. In UV-vis absorption spectra and fluorescence emission spectra of the polymer solns., their absorption and emission maxima were bathochromic shifted as the no. of thiophene repeating units increased. The light-emitting properties of the poly(cyclodiborazane)s were successfully controlled in this way.
- IT 374588-94-0P 374588-95-1P 374588-97-3P
374588-98-4P
(synthesis of poly(cyclodiborazanes) by hydroboration polymn. of dicyanooligothiophenes and their light-emitting properties)
- RN 374588-94-0 ZCA
- CN [2,2':5',2''-Terthiophene]-5,5''-dicarbonitrile, 3'-octyl-, polymer with (2,4,6-trimethylphenyl)borane (9CI) (CA INDEX NAME)

CM 1

CRN 374588-93-9

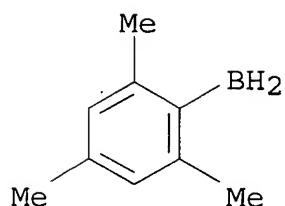
CMF C22 H22 N2 S3



CM 2

CRN 45741-00-2

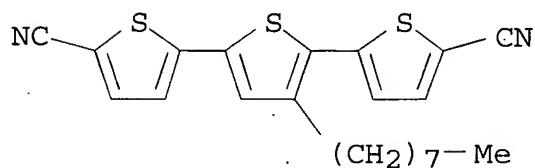
CMF C9 H13 B



RN 374588-95-1 ZCA
 CN [2,2':5',2''-Terthiophene]-5,5''-dicarbonitrile, 3'-octyl-, polymer with [2,4,6-tris(1-methylethyl)phenyl]borane (9CI) (CA INDEX NAME)

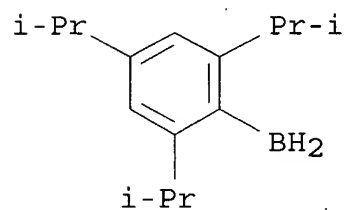
CM 1

CRN 374588-93-9
 CMF C22 H22 N2 S3



CM 2

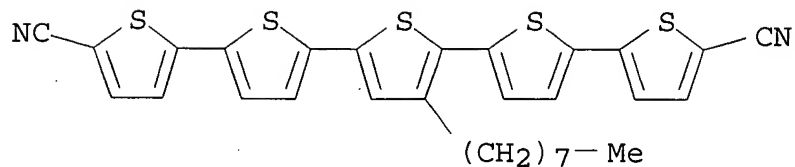
CRN 145434-23-7
 CMF C15 H25 B



RN 374588-97-3 ZCA
 CN [2,2':5',2'':5'',2''':5''',2''':5''''-Quinquethiophene]-5,5''''-dicarbonitrile, 3'''-octyl-, polymer with (2,4,6-trimethylphenyl)borane (9CI) (CA INDEX NAME)

CM 1

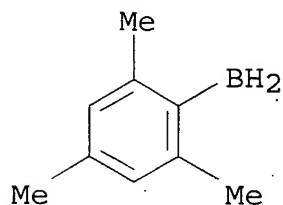
CRN 374588-96-2
 CMF C30 H26 N2 S5



CM 2

CRN 45741-00-2

CMF C9 H13 B



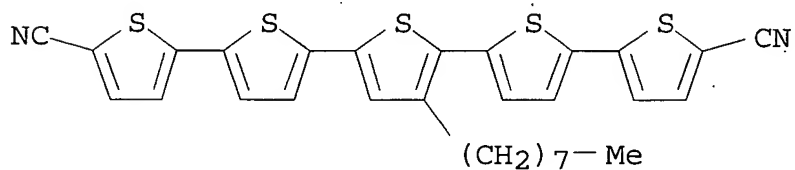
RN 374588-98-4 ZCA

CN [2,2':5',2'':5''',2''':5'''',2''''-Quinquethiophene]-5,5''''-dicarbonitrile, 3'''-octyl-, polymer with [2,4,6-tris(1-methylethyl)phenyl]borane (9CI) (CA INDEX NAME)

CM 1

CRN 374588-96-2

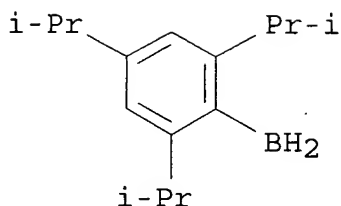
CMF C30 H26 N2 S5



CM 2

CRN 145434-23-7

CMF C15 H25 B



IT 374588-94-0P 374588-95-1P 374588-97-3P
374588-98-4P

(synthesis of poly(cyclodiborazanes) by hydroboration polymn. of dicyanooligothiophenes and their light-emitting properties)

L17 ANSWER 9 OF 40 ZCA COPYRIGHT 2003 ACS

136:6438 Synthesis and characterization of new poly(arylene ethynylene)s based on 3-hexyl multisubstituted oligothiophene blocks. Destri, Silvia; Porzio, William; Khotina, Irina A.; Botta, Chiara; Consonni, Roberto (Consiglio Nazionale delle Ricerche, Istituto di Chimica delle Macromolecole, Milan, 20133, Italy). Macromolecular Chemistry and Physics, 202(12), 2572-2580 (English) 2001. CODEN: MCHPES. ISSN: 1022-1352. Publisher: Wiley-VCH Verlag GmbH.

AB A series of new regioregular poly(arylene ethynylene)s were prep'd. by Pd-catalyzed condensation of 3-hexyl multisubstituted oligothiophene derivs. with either benzene or anthracene compds. The NMR characterization of the starting materials and model compds. lead to a thorough investigation of the corresponding macromols. Both small and large mols. were characterized by optical methods. The former, particularly when contg. anthracene moieties, display noticeable photoluminescence quantum yields. In the polymers, the photoluminescence quantum yield is lower than that of the starting materials when anthracene is present, while the polymers contg. benzene show higher quantum yields.

IT 313698-96-3P 313698-97-4P 313698-99-6P
313699-00-2P 313699-01-3P 374775-92-5P
374775-96-9P 374775-98-1P

(prepn. of poly(arylene ethynylene)s based on 3-hexyl multisubstituted oligothiophene blocks)

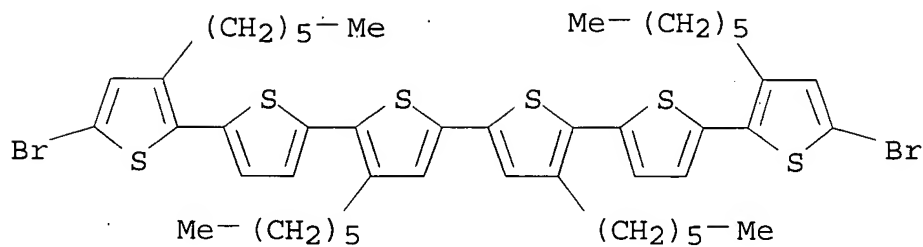
RN 313698-96-3 ZCA

CN 2,2':5'',2'':5''',2''':5''',2''':5''',2''':5'''-Sexithiophene, 5,5''''-dibromo-3,3'',4''',3''''-tetrahexyl-, polymer with 1,4-diethynylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 313698-95-2

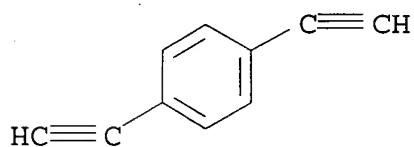
CMF C48 H60 Br2 S6



CM 2

CRN 935-14-8

CMF C10 H6



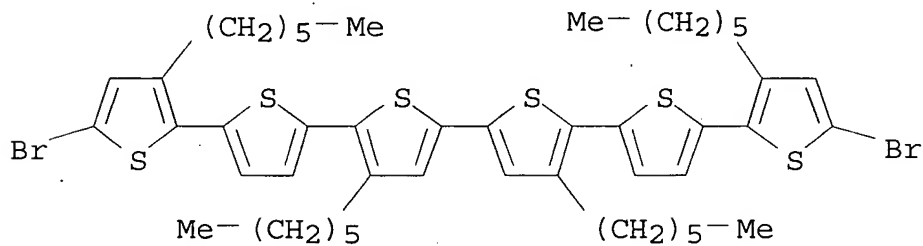
RN 313698-97-4 ZCA

CN 2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene,
5,5''''''-dibromo-3,3'',4'',3''''''-tetrahexyl-, polymer with
9,10-diethynylanthracene (9CI) (CA INDEX NAME)

CM 1

CRN 313698-95-2

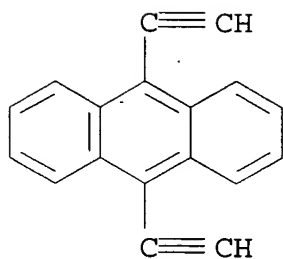
CMF C48 H60 Br2 S6



CM 2

CRN 18512-55-5

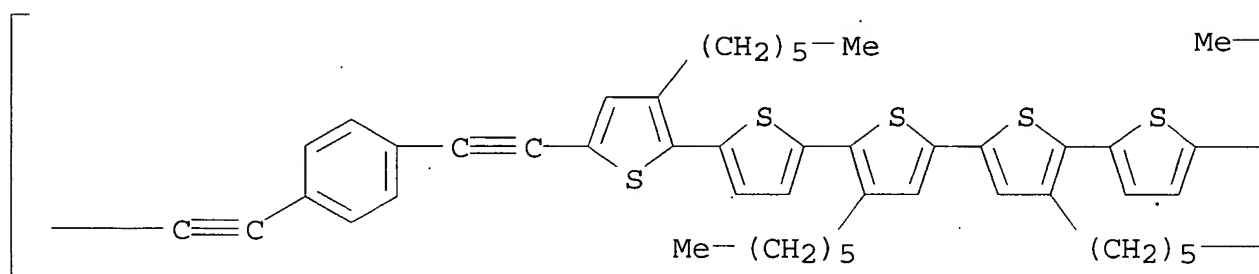
CMF C18 H10



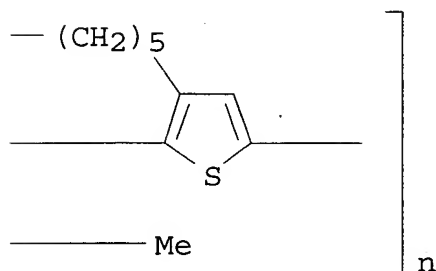
RN 313698-99-6 ZCA

CN Poly[(3,3',3''',4'''-tetrahexyl[2,2':5',2'':5'',2''':5''',2''''':5''''',2''''':5''''',2''''':5''''']-sexithiophene]-5,5''''''-diyl)-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



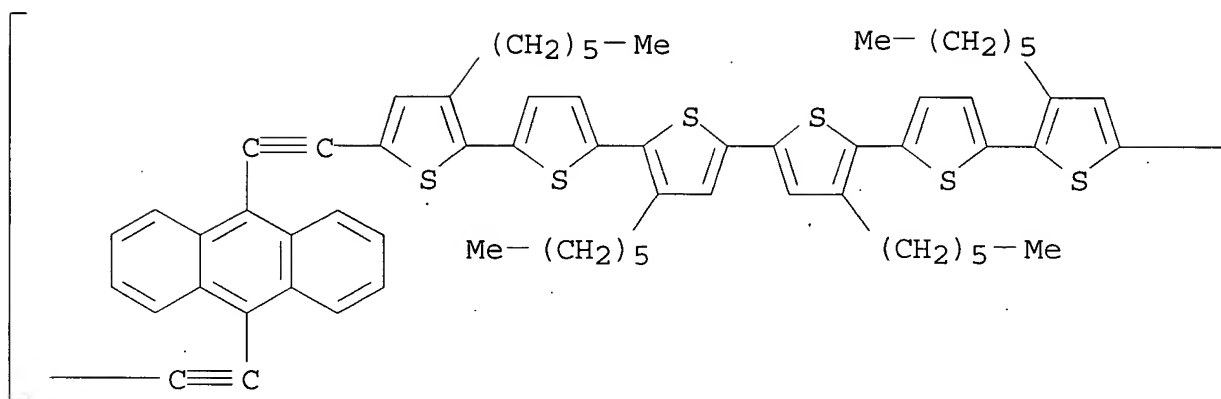
PAGE 1-B



RN 313699-00-2 ZCA

CN Poly[(3,3',3''',4'''-tetrahexyl[2,2':5',2'':5'',2''':5''',2''''':5''''',2''''':5''''',2''''':5''''']-sexithiophene]-5,5''''''-diyl)-1,2-ethynediyl-9,10-anthracenediyl-1,2-ethynediyl] (9CI) (CA INDEX NAME)

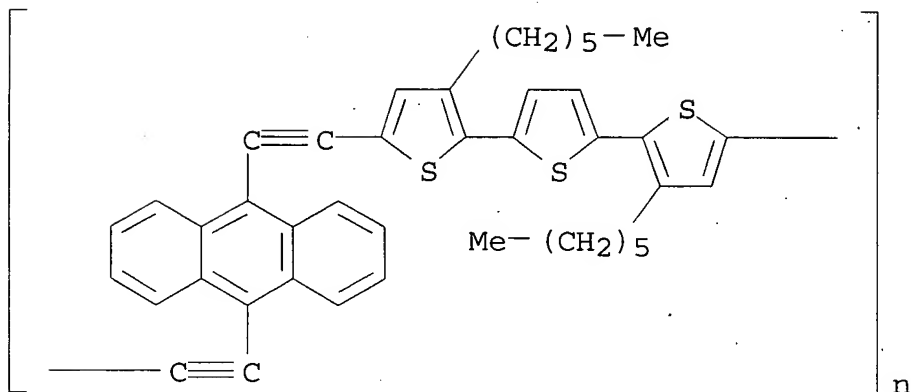
PAGE 1-A



PAGE 1-B

]

RN 313699-01-3 ZCA
 CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)-1,2-ethynediyl-9,10-anthracenediyl-1,2-ethynediyl] (9CI) (CA INDEX NAME).



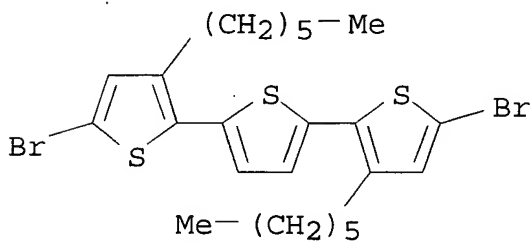
RN 374775-92-5 ZCA

CN 2,2':5',2''-Terthiophene, 5,5''-dibromo-3,3''-dihexyl-, polymer with 1,4-diethynylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 215591-73-4

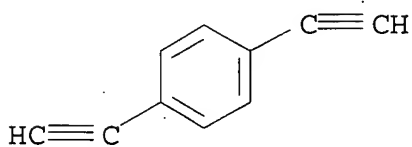
CMF C24 H30 Br2 S3



CM 2

CRN 935-14-8

CMF C10 H6

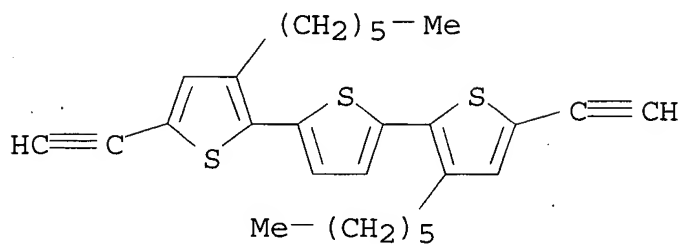


RN 374775-96-9 ZCA

CN 2,2':5',2''-Terthiophene, 5,5''-diethynyl-3,3''-dihexyl-, polymer with 9,10-dibromoanthracene (9CI) (CA INDEX NAME)

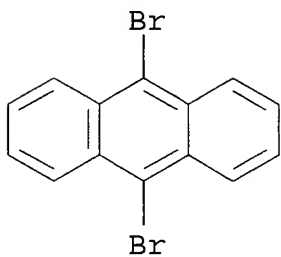
CM 1

CRN 313698-91-8
CMF C28 H32 S3

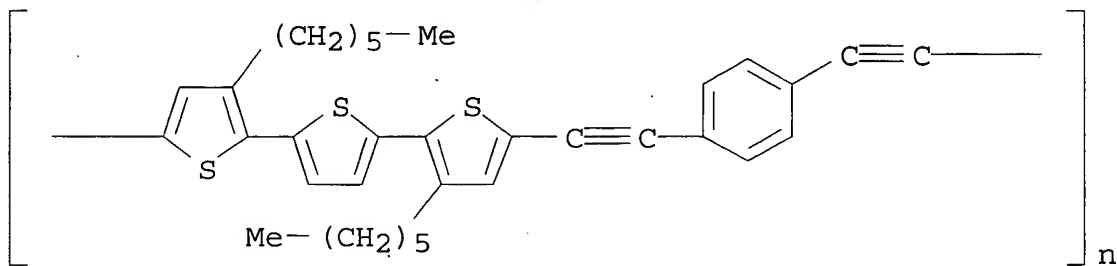


CM 2

CRN 523-27-3
CMF C14 H8 Br2



RN 374775-98-1 ZCA
CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl] (9CI) (CA INDEX NAME)



IT 313698-96-3P 313698-97-4P 313698-99-6P
313699-00-2P 313699-01-3P 374775-92-5P
374775-96-9P 374775-98-1P
(prepn. of poly(arylene ethynylene)s based on 3-hexyl
multisubstituted oligothiophene blocks)

L17 ANSWER 10 OF 40 ZCA COPYRIGHT 2003 ACS

135:5936 Synthesis and optical properties of (thienylene)-[1,6-dithienylhexa-1,3,5-trienylene] copolymers. Embert, Franck; Lere-Porte, Jean-Pierre; Moreau, Joel J. E.; Serein-Spirau, Françoise; Righi, Arieta; Sauvajol, Jean-Louis (Heterochimie Moléculaire et Macromoléculaire, UMR CNRS 076, E.N.S.C.M., l'Ecole Normale, Montpellier, 34296, Fr.). Journal of Materials Chemistry, 11(3), 718-722 (English) 2001. CODEN: JMACEP. ISSN: 0959-9428. Publisher: Royal Society of Chemistry.

AB Two [thiophene-1,6-dithienylhexa-1,3,5-triene] copolymers were prep'd. by a palladium catalyzed coupling reaction of 2,5-dibromothiophene (I) or 2,5-dibromo-3-octylthiophene (II) and a bis(tributylstannyl) deriv. of a 1,6-dithienylhexa-1,3,5-triene unit. The electrochromism and the photoluminescence properties of the highly conjugated polymers were studied. In the solid state the polymers have strong photoluminescence bands at 2.0 eV (from II) and 1.95 eV (from I). The polymer from I seems particularly promising for use as a red-light emitting diode, and both polymers exhibit red-pale blue electrochromism that makes them suitable for fabricating new devices.

IT 340702-40-1P

(prepn. and electrochromism and photoluminescence of thiophene deriv. polymers)

RN 340702-40-1 ZCA

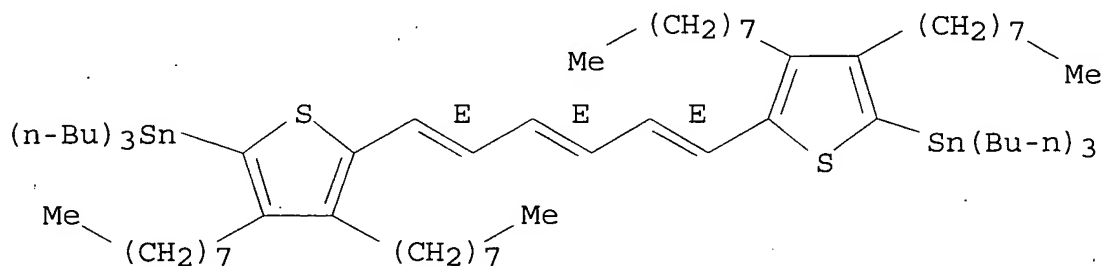
CN Stannane, [[(1E,3E,5E)-1,3,5-hexatriene-1,6-diyl]bis(3,4-dioctyl-5,2-thiophenediyl)]bis[tributyl-, polymer with 2,5-dibromothiophene (9CI) (CA INDEX NAME)

CM 1

CRN 340702-39-8

CMF C70 H128 S2 Sn2

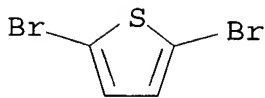
Double bond geometry as shown.



CM 2

CRN 3141-27-3

CMF C4 H2 Br2 S

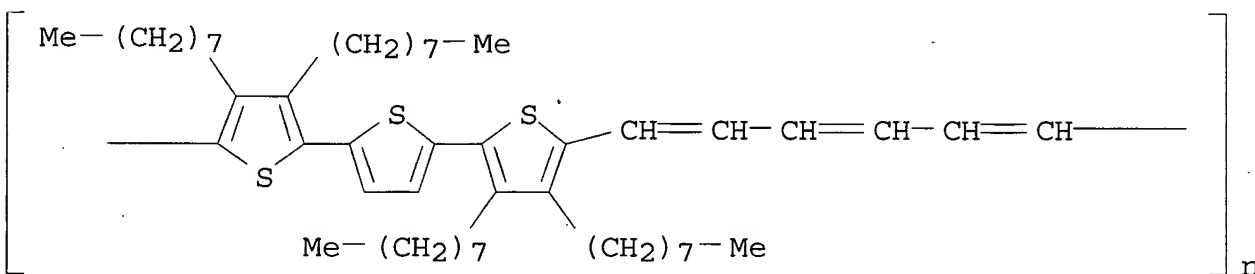


IT 340702-42-3P

(prepn. and electrochromism and photoluminescence of thiophene deriv. polymers)

RN 340702-42-3 ZCA

CN Poly[(3,3'',4,4''-tetraoctyl[2,2':5',2''-terthiophene]-5,5''-diyl)-(1E,3E,5E)-1,3,5-hexatriene-1,6-diyl] (9CI) (CA INDEX NAME)



IT 340702-40-1P

(prepn. and electrochromism and photoluminescence of thiophene deriv. polymers)

IT 340702-42-3P

(prepn. and electrochromism and photoluminescence of thiophene deriv. polymers)

L17 ANSWER 11 OF 40 ZCA COPYRIGHT 2003 ACS

134:223247 Charge transport in .pi.-conjugated polymers from extraction current transients. Juska, G.; Arlauskas, K.; Viliunas, M.; Genevicius, K.; Osterbacka, R.; Stubb, H. (Department of Solid State Electronics, III K, Vilnius University, Vilnius, LT-2040, Lithuania). Physical Review B: Condensed Matter and Materials Physics, 62(24), R16235-R16238 (English) 2000. CODEN: PRBMDO. ISSN: 0163-1829. Publisher: American Physical Society.

AB The carrier transport properties, namely mobility, cond., and charge carrier concn. of three model polymers, regioregular poly(3-hexylthiophene) (RRPHT), poly(p-phenylene vinylene) (PPV), and poly(3,3'',4'',3''''-tetrahexyl-.alpha.-sexithienylene-azomethine-1,4'-biphenylene azomethine) polyazomethine (PAM) were studied by charge extn. in a linearly increasing voltage. The charge carrier transients were modeled, including a Gaussian distribution of localized states and the typical Poole-Frenkel-type field-dependent mobility obsd. in these materials, and good agreement with measured values was obtained. The field-dependent release time from the localized states, .tau.R is an important factor in RRPHT and PPV, while in PAM it is governed by stochastic transport.

IT 189148-20-7 189148-21-8
(mechanisms of charge carrier transport in .pi.-conjugated polyhexylthiophene and PPV and polyazomethine-polythiophene detd. from extn. current transients)

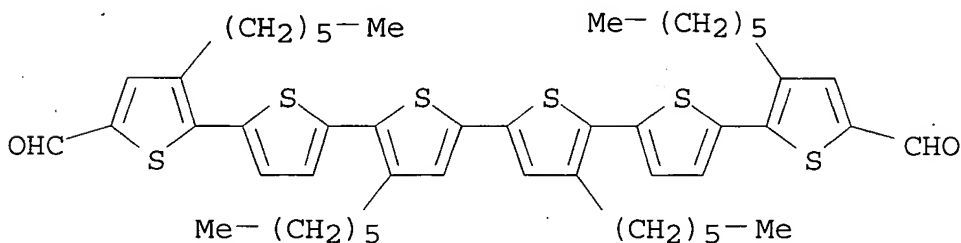
RN 189148-20-7 ZCA

CN [2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene]-3,3''''-dicarboxaldehyde, 3,3'',3''''',4''''-tetrahexyl-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 189148-19-4

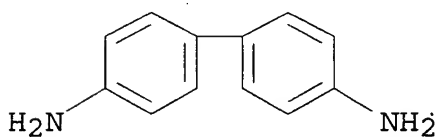
CMF C50 H62 O2 S6



CM 2

CRN 92-87-5

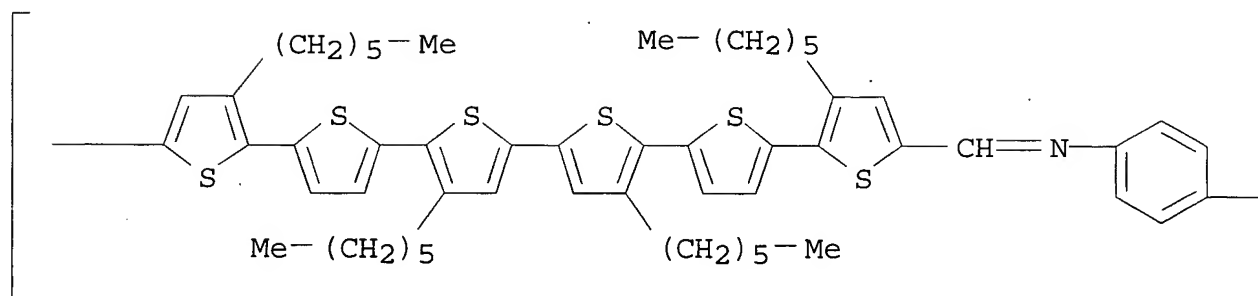
CMF C12 H12 N2



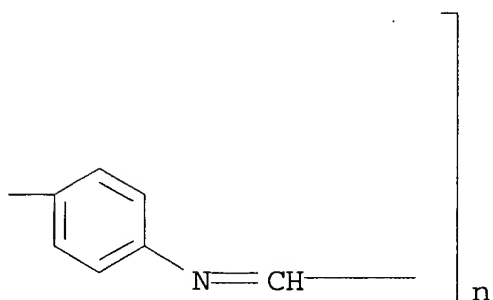
RN 189148-21-8 ZCA

CN Poly[(3,3'',3''''',4''''-tetrahexyl[2,2':5',2'':5'',2''':5''',2''':5'''-sexithiophene]-3,3''''-diyl)methylidynenitrilo[1,1'-biphenyl]-4,4'-diyl]nitrilomethylidyne] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 189148-20-7 189148-21-8

(mechanisms of charge carrier transport in .pi.-conjugated polyhexylthiophene and PPV and polyazomethine-polythiophene detd. from extn. current transients)

L17 ANSWER 12 OF 40 ZCA COPYRIGHT 2003 ACS

134:57061 Synthesis and characterization of new polyaryleneethynylenes based on 3-hexyl multisubstituted oligothiophene blocks. Destri, Silvia; Porzio, William; Khotina, Irina A.; Botta, Chiara; Consonni, Roberto (Consiglio Nazionale delle Ricerche, Istituto di Chimica delle Macromolecole, Milan, 20133, Italy). Materials Research Society Symposium Proceedings, 598(Electrical, Optical, and Magnetic Properties of Organic Solid-State Materials V), BB3.50/1-BB3.50/6 (English) 2000. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

AB A series of new regioregular polyaryleneethynylene obtained by condensation of 3-hexyl multisubstituted oligothiophene derivs. with benzene and anthracene compds. were prepd. A complete NMR characterization of the starting monomers and model compds. lead to a deep investigation of the corresponding macromols. Both small and large mols. were optically characterized, the former, particularly when contg. anthracene, moieties display noticeable photoluminescence quantum yield. In the polymers the photoluminescence quantum yield is lower than that of the starting

mols. when anthracene is present, while the polymers contg. benzene are more luminescent.

IT 313698-96-3P 313698-97-4P 313698-98-5P

313698-99-6P 313699-00-2P 313699-01-3P

(polyaryleneethynylenes based on 3-hexyl multisubstituted oligothiophene blocks)

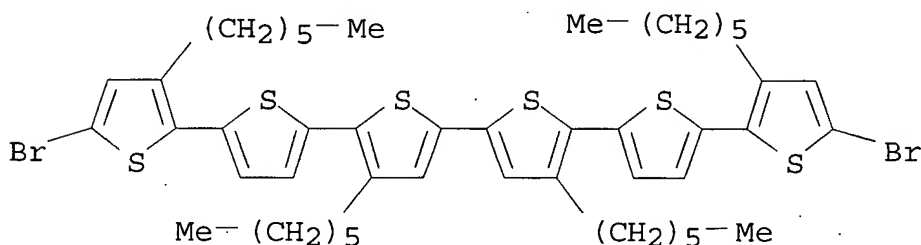
RN 313698-96-3 ZCA

CN 2,2':5',2'':5''',2''':5''''',2''''':5''''',2''''':5'''''-Sexithiophene, 5,5''''''-dibromo-3,3'',4'',3''''''-tetrahexyl-, polymer with 1,4-diethynylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 313698-95-2

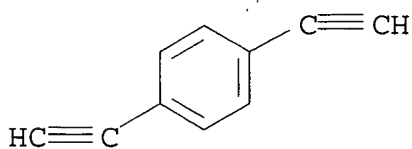
CMF C48 H60 Br2 S6



CM 2

CRN 935-14-8

CMF C10 H6



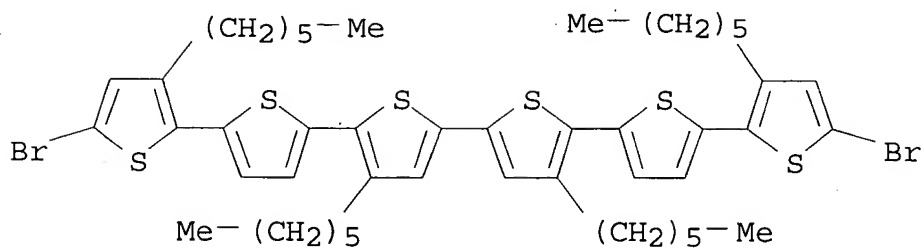
RN 313698-97-4 ZCA

CN 2,2':5',2'':5''',2''':5''''',2''''':5''''',2''''':5'''''-Sexithiophene, 5,5''''''-dibromo-3,3'',4'',3''''''-tetrahexyl-, polymer with 9,10-diethynylanthracene (9CI) (CA INDEX NAME)

CM 1

CRN 313698-95-2

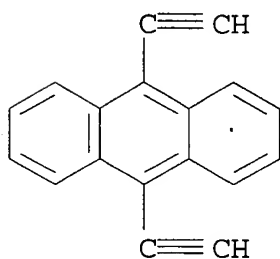
CMF C48 H60 Br2 S6



CM 2

CRN 18512-55-5

CMF C18 H10



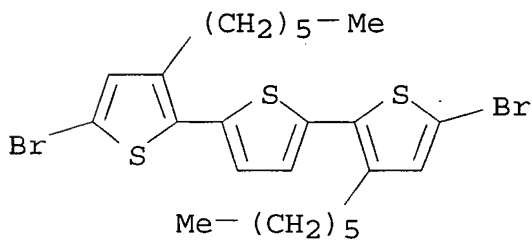
RN 313698-98-5 ZCA

CN 2,2':5',2''-Terthiophene, 5,5''-dibromo-3,3''-dihexyl-, polymer with 9,10-diethynylantracene (9CI) (CA INDEX NAME)

CM 1

CRN 215591-73-4

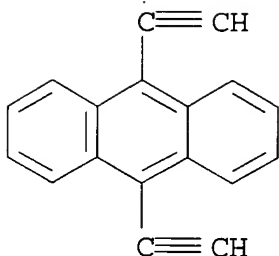
CMF C24 H30 Br2 S3



CM 2

CRN 18512-55-5

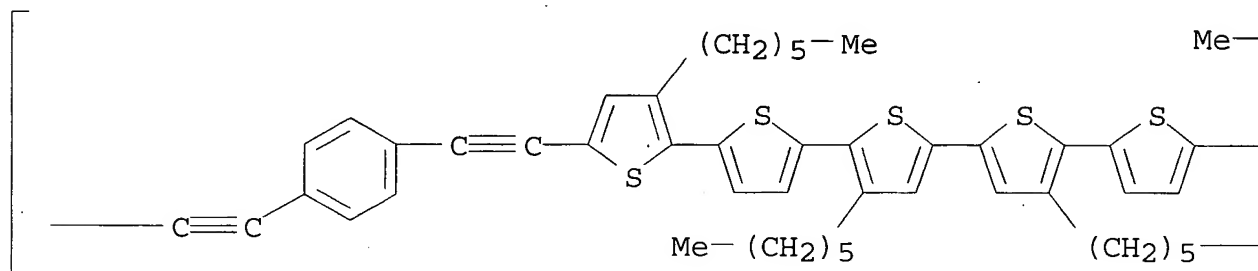
CMF C18 H10



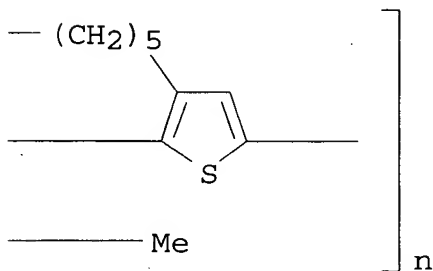
RN 313698-99-6 ZCA

CN Poly[(3,3',3''',4'''-tetrahexyl[2,2':5',2'':5'',2''':5''',2''''':5''''',2''''':5'''''-sexithiophene]-5,5''''''-diyl)-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



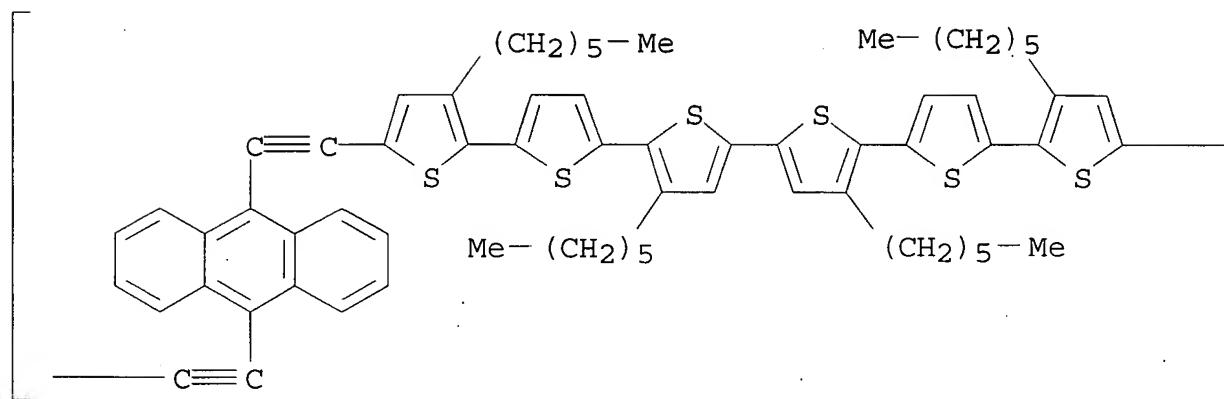
PAGE 1-B



RN 313699-00-2 ZCA

CN Poly[(3,3',3''',4'''-tetrahexyl[2,2':5',2'':5'',2''':5''',2''''':5''''',2''''':5'''''-sexithiophene]-5,5''''''-diyl)-1,2-ethynediyl-9,10-anthracenediyl-1,2-ethynediyl] (9CI) (CA INDEX NAME)

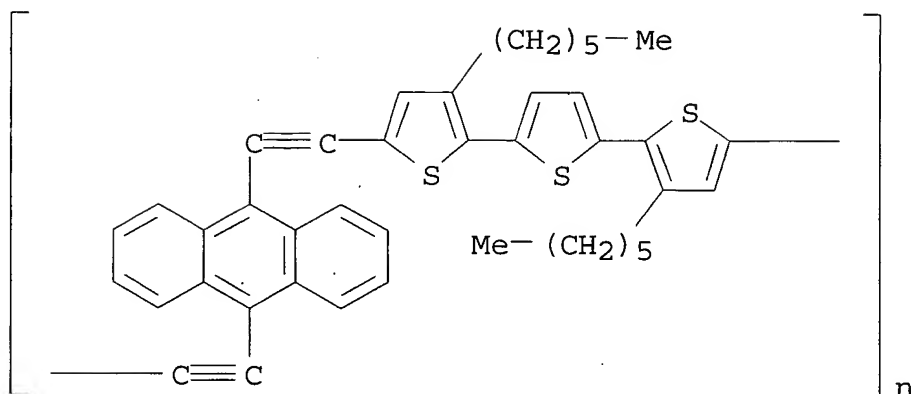
PAGE 1-A



PAGE 1-B

]

RN 313699-01-3 ZCA
 CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)-1,2-ethynediyl-9,10-anthracenediyl-1,2-ethynediyl] (9CI) (CA INDEX NAME)



IT 313698-96-3P 313698-97-4P 313698-98-5P
 313698-99-6P 313699-00-2P 313699-01-3P
 (polyaryleneethynylenes based on 3-hexyl multisubstituted
 oligothiophene blocks)

L17 ANSWER 13 OF 40 ZCA COPYRIGHT 2003 ACS

133:200779 Enhanced photorefractive effect in a hybrid photoconducting polymer-liquid crystal panel. Bartkiewicz, Stanislaw; Kajzar, Francois; Miniewicz, Andrzej; Zagorska, Malgorzata (Institute of Physical and Theoretical Chemistry, Wroclaw University of Technology, Wroclaw, 50-370, Pol.). MCLC S&T, Section B: Nonlinear Optics, 22(1-4), 213-216 (English) 1999. CODEN: MCLOEB. ISSN: 1058-7268. Publisher: Gordon & Breach Science Publishers.

AB A novel liq. crystal panel suitable for real-time holog. comprised a nematic liq. crystal layer sandwiched between very thin photoconducting polymeric layers. Poly(3-octyl-thiophene) functionalized with Disperse red 1 (DR 1) was used as the photoconducting polymer. The panel was studied by a two-wave mixing expt. in a tilted configuration and showed very high performances. The gain coeff. measured at the incidence angle of 45.degree. in a 10 .mu.m thick film was one of the highest reported so far for similar systems and reached a value of $g = 7$ at the low applied external elec. field (0.6 V/.mu.m). The corresponding net exponential gain coeff. $\lambda = 2600 \text{ cm}^{-1}$ was the highest reported up to now. The structure also showed a fast response time.

IT 209803-63-4

(liq. crystal panel for real-time holog. consisting of nematic liq. crystal layer sandwiched between photoconducting polymeric layers)

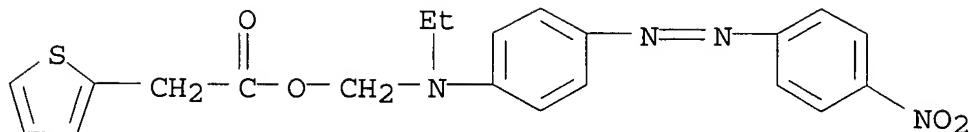
RN 209803-63-4 ZCA

CN 2-Thiopheneacetic acid, [ethyl[4-[(4-nitrophenyl)azo]phenyl]amino]methyl ester, polymer with 3-heptylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 209803-62-3

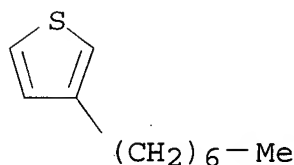
CMF C21 H20 N4 O4 S



CM 2

CRN 65016-61-7

CMF C11 H18 S



IT 209803-63-4

(liq. crystal panel for real-time holog. consisting of nematic liq. crystal layer sandwiched between photoconducting polymeric layers)

L17 ANSWER 14 OF 40 ZCA COPYRIGHT 2003 ACS

132:265691 Tuning redox behavior and emissive wavelength of conjugated polymers by p-n diblock structures - a theoretical investigation. Pan, J.-F.; Chua, S.-J.; Huang, W. (Institute of Materials Research and Engineering (IMRE), National University of Singapore, Singapore, Singapore). Synthetic Metals, 110(1), 85-89 (English) 2000. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

AB The authors present the results of mol. modeling on the structural units of 2 series of conjugated polymers using semi-empirical MO calcns. The redox behavior and emissive wavelength of the polymers can be tuned by p-n diblock structures. The results obtained from parameterization method 3 (PM3) calcns. performed on model compds. give good correlation with physicochem. properties obsd. from the corresponding polymers. The reverse trend in the calcd. values of polymer A and B is analyzed with conformational study. Some of the Austin model 1 (AM1) data are also included for comparison.

IT 263381-59-5

(tuning redox behavior and emissive wavelength of conjugated polymers by p-n diblock structures - theor. investigation)

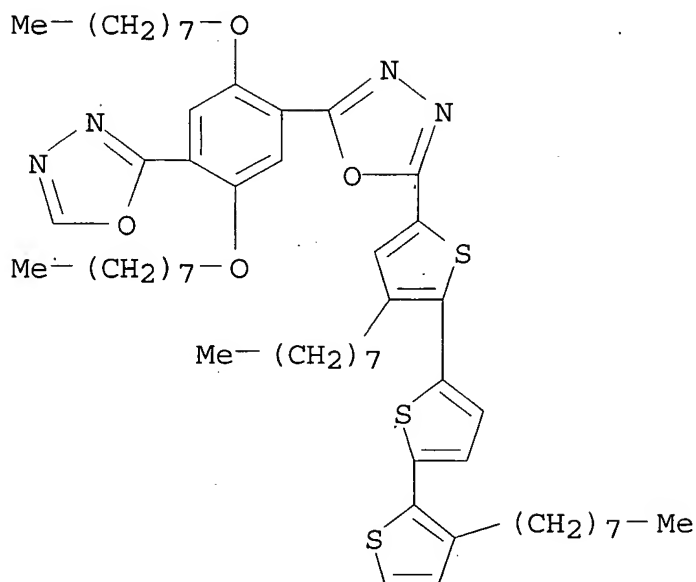
RN 263381-59-5 ZCA

CN 1,3,4-Oxadiazole, 2-[2,5-bis(octyloxy)-4-(1,3,4-oxadiazol-2-yl)phenyl]-5-(3,3''-dioctyl[2,2':5',2''-terthiophen]-5-yl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 263381-58-4

CMF C54 H76 N4 O4 S3



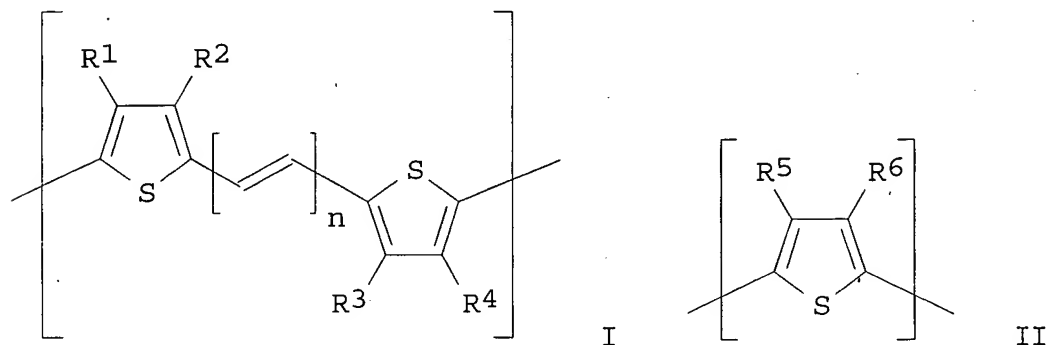
IT 263381-59-5

(tuning redox behavior and emissive wavelength of conjugated polymers by p-n diblock structures - theor. investigation)

L17 ANSWER 15 OF 40 ZCA COPYRIGHT 2003 ACS

130:331328 Doped thiophene polymer electrically conducting material and solid electrolytic capacitor using it. Sato, Kuniaki; Kuwahara, Masahiro; Koike, Koumei (Mitsui Chemicals Inc., Japan). Jpn. Kokai Tokkyo Koho JP 11106485 A2 19990420 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-267311 19970930.

GI



AB The elec. conducting material comprises a doped polymer having structural repeating units (A) I ($n = 1-3$; $R1-R4 = H$, C1-12 alkyl) or (B) I and II ($R5, R6 = H$, C1-12 alkyl). The capacitor contg. the

material as a cathode is also claimed. The material shows high elec. cond. and good heat resistance and gives capacitors with good high-frequency and high-temp. characteristics.

IT **223604-33-9P**, trans-1,2-Di(2-thienyl)ethylene-3-dodecylthiophene copolymer
(doped thiophene polymer elec. conducting material for solid electrolytic capacitor)

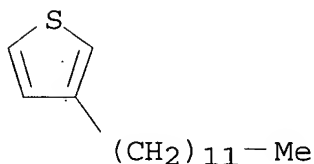
RN 223604-33-9 ZCA

CN Thiophene, 2,2'-(1E)-1,2-ethenediylbis-, polymer with 3-dodecylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 104934-52-3

CMF C16 H28 S

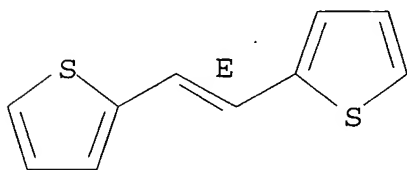


CM 2

CRN 13640-78-3

CMF C10 H8 S2

Double bond geometry as shown.

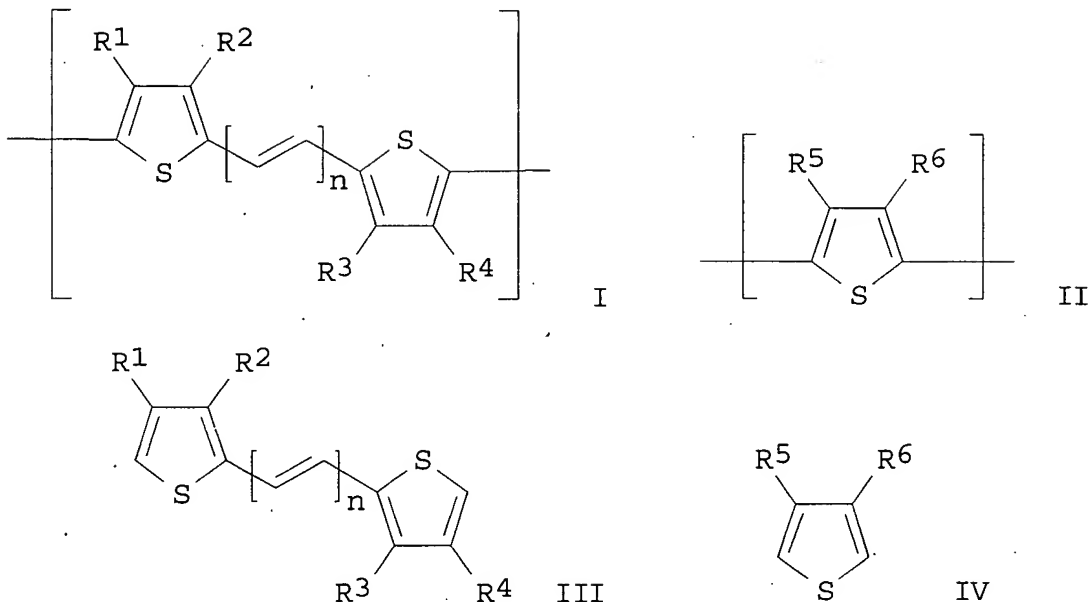


IT **223604-33-9P**, trans-1,2-Di(2-thienyl)ethylene-3-dodecylthiophene copolymer
(doped thiophene polymer elec. conducting material for solid electrolytic capacitor)

L17 ANSWER 16 OF 40 ZCA COPYRIGHT 2003 ACS

130:312957 Electroconductive thiophene polymers including trans-vinylene linkages and their preparation. Sato, Kuniaki; Kuwahara, Masahiro; koike, Tsuneaki (Mitsui Chemicals Inc., Japan). Jpn. Kokai Tokkyo Koho JP 11106484 A2 19990420 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-267310 19970930.

GI



AB The copolymers comprise structure units I and II ($R_1-6 = H$, C_1-12 alkyl; $n = 1-3$), and are prepd. by reaction of III and thiophene compds. IV (R_1-6 , $n =$ described as above) in liq. phase in the presence of transition metal chlorides. Otherwise, III and IV may be polymd. electrolytically in the presence of support electrolytes. A solid electrolytic capacitor using a cathode of the thiophene polymer shows small resonance impedance and less deterioration at high temp. Thus, 357 mg trans-1,2-di(2-thienyl)ethylene was copolymd. with 67 mg thiophene in the presence of $FeCl_3$ to give a thiophene polymer as a black ppt.

IT **223604-33-9P**

(prepn. of thiophene polymers including trans-vinylene linkages for electrolytic capacitor cathodes)

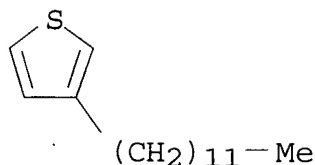
RN 223604-33-9 ZCA

CN Thiophene, 2,2'-(1E)-1,2-ethenediylbis-, polymer with 3-dodecylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 104934-52-3

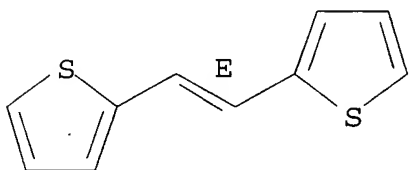
CMF C16 H28 S



CM 2

CRN 13640-78-3
 CMF C10 H8 S2

Double bond geometry as shown.



IT 223604-33-9P

(prepn. of thiophene polymers including trans-vinylene linkages for electrolytic capacitor cathodes)

L17 ANSWER 17 OF 40 ZCA COPYRIGHT 2003 ACS

130:139711 A Novel Series of p-n Diblock Light-Emitting Copolymers Based on Oligothiophenes and 1,4-Bis(oxadiazolyl)-2,5-dialkyloxybenzene. Huang, Wei; Meng, Hong; Yu, Wang-Lin; Pei, Jian; Chen, Zhi-Kuan; Lai, Yee-Hing (Institute of Materials Research and Engineering and Department of Chemistry, National University of Singapore, Singapore, 119260, Singapore). *Macromolecules*, 32(1), 118-126 (English) 1999. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB A new series of p-n diblock conjugated copolymers consisting of alternate 1,4-bis(oxadiazolyl)-2,5-dialkyloxybenzene and oligothiophenes with one to three thiophene rings (P1-P3) have been synthesized. The polymers have well-defined structures and exhibit good thermal stability with the onset decompn. temps. in nitrogen at around 300 .degree.C. The glass transition temp. (Tg) of the polymers decreases with increasing the length of oligothiophene blocks. Both the absorption spectra and photoluminescence spectra shift to longer wavelength with increase in the length of oligothiophene blocks. The emissive color of the polymers could be tuned from blue to green to orange just by increasing the no. of thiophene rings in the oligothiophene blocks from one to three. No obvious change in redn. potential is found for the polymers with variation in the length of oligothiophene blocks. The redn. potential E1/2 of the polymers is measured by cyclic voltammetry to

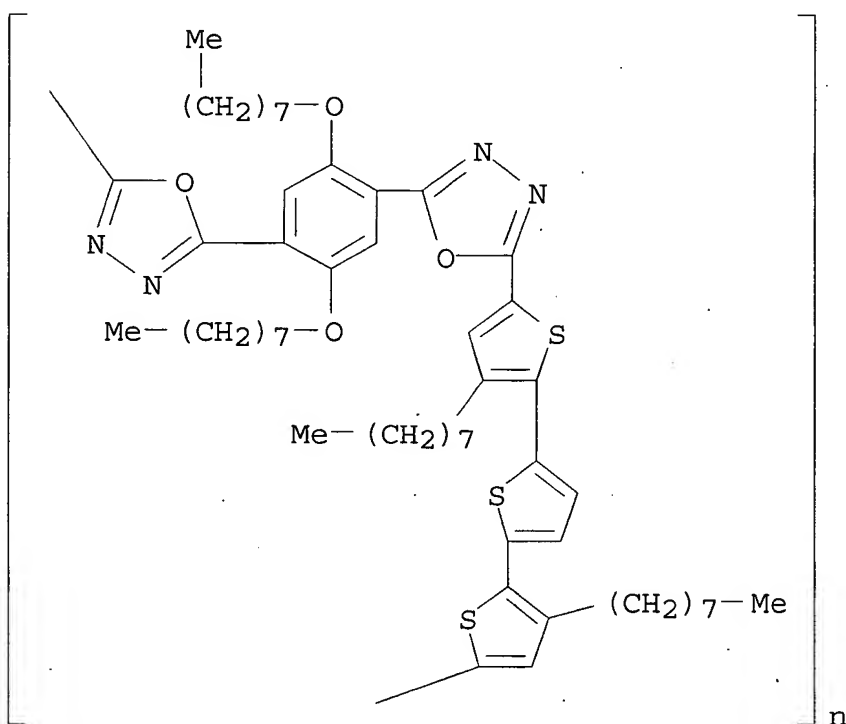
be around -1.7 V vs SCE, comparable to those of poly(cyanoterephthalidyene) (CN-PPV) and other good electron-transporting materials. The oxidn. potential of the polymers can be reduced remarkably by increasing the length of oligothiophene blocks. The oxidn. potential $E_{1/2}$ of P3 is measured to be 1.25 V with the onset potential at 1.0 V vs SCE. These values are comparable to those of some hole-injection favorable electroluminescent polymers. The results prove that the p-n diblock structure may be a promising mol. design for synthetically tuning the HOMO and LUMO of conjugated polymers.

IT 215324-20-2P

(prepn. and physicochem. properties of series of light-emitting copolymers based on oligothiophenes and 1,4-bis(oxadiazolyl)-2,5-dialkyloxybenzene)

RN 215324-20-2 ZCA

CN Poly[1,3,4-oxadiazole-2,5-diyl[2,5-bis(octyloxy)-1,4-phenylene]-1,3,4-oxadiazole-2,5-diyl(3,3''-dioctyl[2,2':5',2''-terthiophene]-5,5''-diyl)] (9CI) (CA INDEX NAME)



IT 215324-16-6P 215324-18-8P

(prepn. and physicochem. properties of series of light-emitting copolymers based on oligothiophenes and 1,4-bis(oxadiazolyl)-2,5-dialkyloxybenzene)

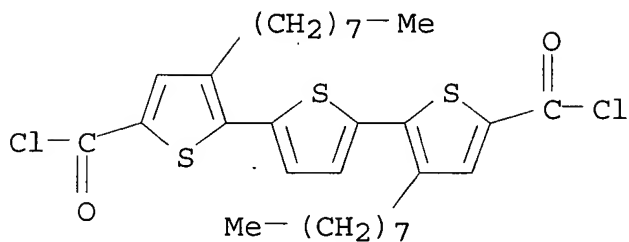
RN 215324-16-6 ZCA

CN 1,4-Benzenedicarboxylic acid, 2,5-bis(octyloxy)-, dihydrazide, polymer with 3,3''-dioctyl[2,2':5',2''-terthiophene]-5,5''-dicarbonyl dichloride (9CI) (CA INDEX NAME)

CM 1

CRN 215324-15-5

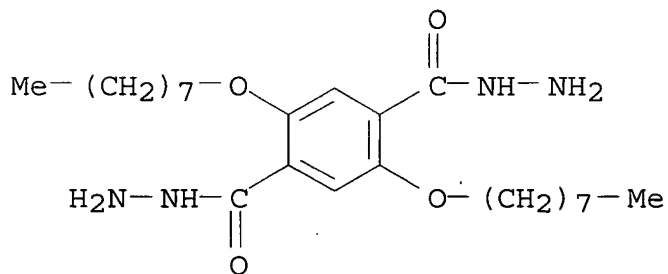
CMF C30 H38 Cl2 O2 S3



CM 2

CRN 215324-12-2

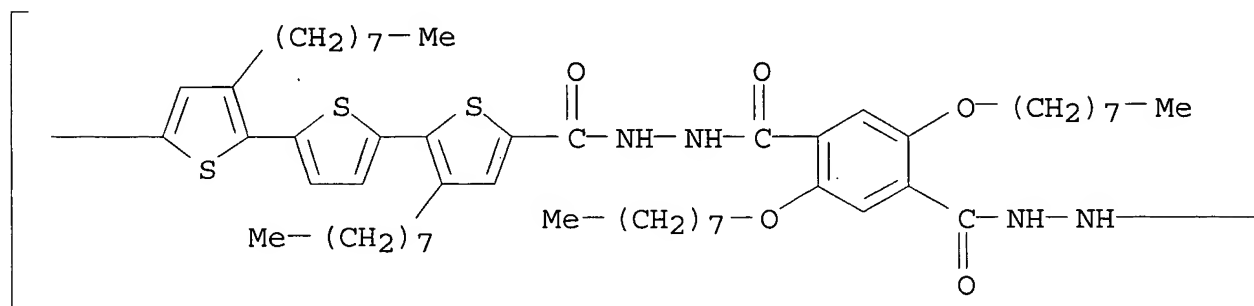
CMF C24 H42 N4 O4



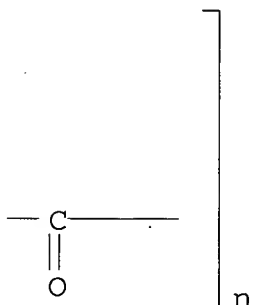
RN 215324-18-8 ZCA

CN Poly[(3,3'-dioctyl[2,2':5',2''-terthiophene]-5,5''-diyl)carbonylhydrazocarbonyl[2,5-bis(octyloxy)-1,4-phenylene]carbonylhydrazocarbonyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 215324-20-2P

(prepn. and physicochem. properties of series of light-emitting copolymers based on oligothiophenes and 1,4-bis(oxadiazolyl)-2,5-dialkyloxybenzene)

IT 215324-16-6P 215324-18-8P

(prepn. and physicochem. properties of series of light-emitting copolymers based on oligothiophenes and 1,4-bis(oxadiazolyl)-2,5-dialkyloxybenzene)

L17 ANSWER 18 OF 40 ZCA COPYRIGHT 2003 ACS

130:52896 Tuning Redox Behavior and Emissive Wavelength of Conjugated Polymers by p-n Diblock Structures. Yu, Wang-Lin; Meng, Hong; Pei, Jian; Huang, Wei (Institute of Materials Research and Engineering, National University of Singapore, Singapore, 119260, Singapore). Journal of the American Chemical Society, 120(45), 11808-11809 (English) 1998. CODEN: JACSAT. ISSN: 0002-7863. Publisher: American Chemical Society.

AB The idea of p-n diblock structure in conjugated polymers affords an efficient approach of tuning emissive color of conjugated polymers. According to the electrochem. studies, it provides a promising synthetic route to adjust the HOMO and LUMO of electroluminescent polymers to balance the injections of electrons and holes from the opposite contacts. Intensive studies on the charge transporting properties of these polymers in polymeric LED devices are in progress.

IT 215324-16-6P, 2,5-Dioctyloxyterephthalic dihydrazide-3,3''-dioctyl-2,2':5',2''-terthiophene-5,5''-dicarbonyl dichloride copolymer 215324-18-8P, 2,5-Dioctyloxyterephthalic dihydrazide-3,3''-dioctyl-2,2':5',2''-terthiophene-5,5''-dicarbonyl dichloride copolymer, sr
(tuning redox behavior and emissive wavelength of conjugated polymers by p-n diblock structures)

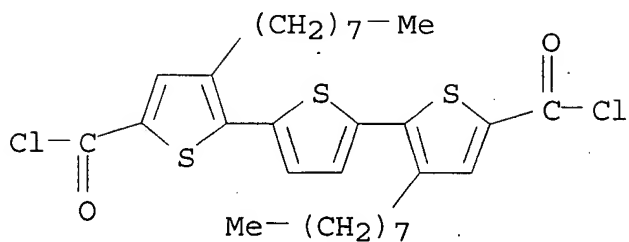
RN 215324-16-6 ZCA

CN 1,4-Benzenedicarboxylic acid, 2,5-bis(octyloxy)-, dihydrazide, polymer with 3,3''-dioctyl[2,2':5',2''-terthiophene]-5,5''-dicarbonyl dichloride (9CI) (CA INDEX NAME)

CM 1

CRN 215324-15-5

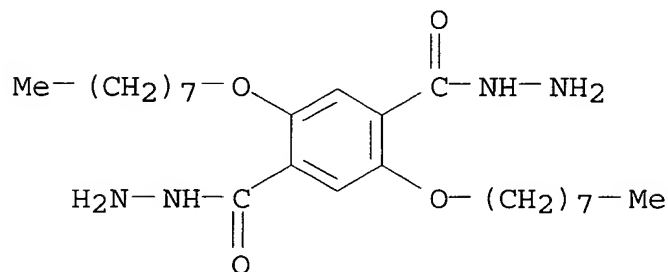
CMF C30 H38 Cl2 O2 S3



CM 2

CRN 215324-12-2

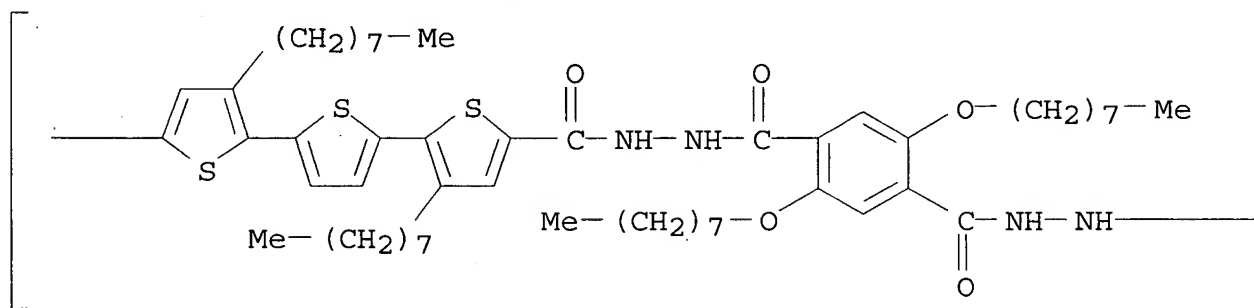
CMF C24 H42 N4 O4



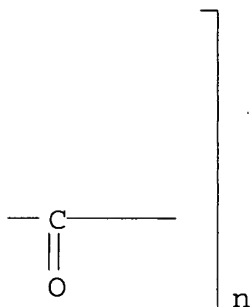
RN 215324-18-8 ZCA

CN Poly[(3,3''-dioctyl[2,2':5',2''-terthiophene]-5,5''-diyl)carbonylhydrazocarbonyl[2,5-bis(octyloxy)-1,4-phenylene]carbonylhydrazocarbonyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 215324-16-6P, 2,5-Dioctyloxyterephthalic dihydrazide-3,3''-dioctyl-2,2':5',2''-terthiophene-5,5''-dicarbonyl dichloride copolymer 215324-18-8P, 2,5-Dioctyloxyterephthalic dihydrazide-3,3''-dioctyl-2,2':5',2''-terthiophene-5,5''-dicarbonyl dichloride copolymer, sru
(tuning redox behavior and emissive wavelength of conjugated polymers by p-n diblock structures)

L17 ANSWER 19 OF 40 ZCA COPYRIGHT 2003 ACS

129:343775 Synthesis of 1,4-bis(1,3,4-oxadiazol-2-yl)-2,5-dialkoxybenzene-oligothiophene copolymers with different emissive colors: synthetically tuning the photoluminescence of conjugated polymers. Yu, Wang-Lin; Meng, Hong; Pei, Jian; Chua, Soo-Jin; Huang, Wei; Lai, Yee-Hing (Institute of Materials Research and Engineering, National University of Singapore, Singapore, 119260, Singapore). Chemical Communications (Cambridge) (18), 1957-1958 (English) 1998. CODEN: CHCOFS. ISSN: 1359-7345. Publisher: Royal Society of Chemistry.

AB A series of totally conjugated copolymers consisting of oligothiophenes and 1,4-bis(1,3,4-oxadiazol-2-yl)-2,5-dioctyloxybenzene were prep'd. by polycondensation of 3-octyl-2,5-thiophenedicarbonyl dichloride monomer, dimer and trimer with 3,6-dioctyloxyterephthaloyl dihydrazide followed by conversion of the polyhydrazide products into polyoxadiazoles by refluxing in POCl₃. The emissive color of the copolymers could be tuned from blue to green to orange by increasing the no. of thiophene rings in the oligothiophene blocks from one to three. The 1,4-bis(1,3,4-oxadiazol-2-yl)-2,5-dioctyloxybenzene block acts as part of the whole conjugated structure and is equiv. to about two to three thiophene rings. These electroluminescent polymeric materials may provide an effective approach to the synthesis of n-doped type electroluminescent materials with different emissive colors due to the high electron affinity of 1,3,4-oxadiazole.

IT 215324-16-6P 215324-18-8P 215324-20-2P
(synthetically tuning photoluminescence of conjugated polymers in synthesis of 1,4-bis(1,3,4-oxadiazol-2-yl)-2,5-dialkoxybenzene-

oligothiophene copolymers with different emissive colors)

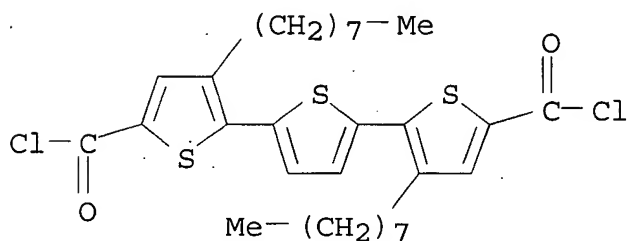
RN 215324-16-6 ZCA

CN 1,4-Benzenedicarboxylic acid, 2,5-bis(octyloxy)-, dihydrazide, polymer with 3,3''-dioctyl[2,2':5',2''-terthiophene]-5,5''-dicarbonyl dichloride (9CI) (CA INDEX NAME)

CM 1

CRN 215324-15-5

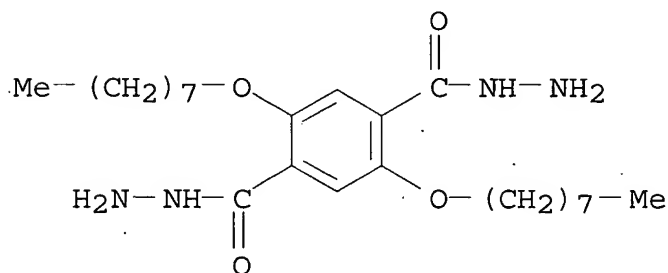
CMF C30 H38 Cl2 O2 S3



CM 2

CRN 215324-12-2

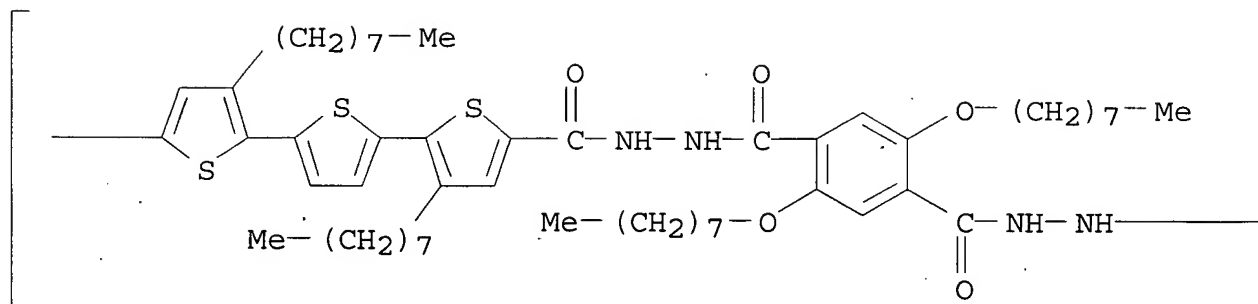
CMF C24 H42 N4 O4



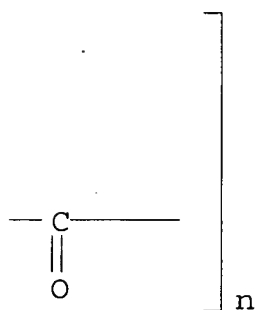
RN 215324-18-8 ZCA

CN Poly[(3,3''-dioctyl[2,2':5',2''-terthiophene]-5,5''-diyl)carbonylhazocarbonyl[2,5-bis(octyloxy)-1,4-phenylene]carbonylhazocarbonyl] (9CI) (CA INDEX NAME)

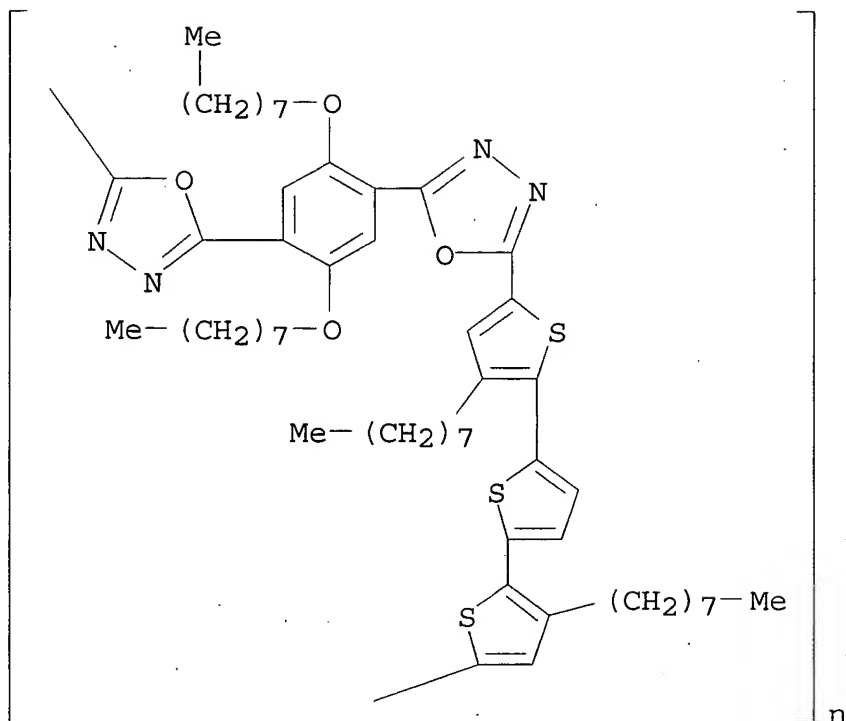
PAGE 1-A



PAGE 1-B



RN 215324-20-2 ZCA
 CN Poly[1,3,4-oxadiazole-2,5-diyl[2,5-bis(octyloxy)-1,4-phenylene]-
 1,3,4-oxadiazole-2,5-diyl(3,3''-dioctyl[2,2':5',2''-terthiophene]-
 5,5''-diyl)] (9CI) (CA INDEX NAME)



IT 215324-16-6P 215324-18-8P 215324-20-2P

(synthetically tuning photoluminescence of conjugated polymers in synthesis of 1,4-bis(1,3,4-oxadiazol-2-yl)-2,5-dialkoxybenzene-oligothiophene copolymers with different emissive colors)

L17 ANSWER 20 OF 40 ZCA COPYRIGHT 2003 ACS

129:136796 Photoexcitations and chemical doping of a soluble conjugated thiophene/phenylene block copolymer. Botta, C.; Destri, S.; Porzio, W.; Rossi, L.; Tubino, R. (Ist. Chim. Macromol., CNR, Milan; 20133, Italy). Synthetic Metals, 95(1), 53-56 (English) 1998.. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

AB The optical properties and the formation of charged species of a newly synthesized sol. thiophene/phenylene block copolymer are studied with Raman scattering, optical and photoinduced absorption spectroscopies. The optical properties of the copolymer are detd. by its low-gap segments, strictly resembling the dialdehyde sexithiophene mol. Charged species, injected by chem. doping and by photoexcitation, are polarons which accommodate within the thiophene blocks of the copolymer.

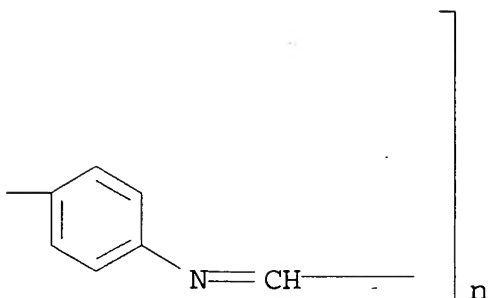
IT 189148-20-7 189148-21-8

(optical properties and formation of charged species of)

RN 189148-20-7 ZCA

CN [2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene]-3,3''''-dicarboxaldehyde, 3,3'',3''''',4''''-tetrahexyl-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

PAGE 1-B



IT 189148-20-7 189148-21-8

(optical properties and formation of charged species of)

L17 ANSWER 21 OF 40 ZCA COPYRIGHT 2003 ACS

129:101710 Enhanced photorefractive effects in a hybrid photoconducting polymer-liquid crystal panel. Bartkiewicz, Stanislaw; Miniewicz, Andrzej; Kajzar, Francois; Zagorska, Malgorzata (Inst. Physical Theoretical Chemistry, Wroclaw Univ. Technology, Wroclaw, Pol.). Photonics Science News, 3(4), 10-14 (English) 1998. CODEN: PSNEFZ. ISSN: 1023-6600. Publisher: Gordon & Breach Science Publishers.

AB A photorefractive cell for coherent beam amplification is described and its performance studied and discussed. The structure consists of a layer of nematic liq. crystal sandwiched between 2 thin layers of an org. photoconductor, a copolymer of poly(octylthiophene) functionalized with disperse red 1 chromophore. The panel, studied by 2-beam coupling expts., shows a high performance. The gain coeff. was measured at the incidence angle of 45.degree. in a 10 .mu.m thick film and reached $g = 7$ at 0.5 V/.mu.m. The corresponding net exponential gain coeff. .GAMMA. .apprx. 2600 cm⁻¹ was found. The response time was estd. .apprx. 10 ms.

IT 209803-63-4

(enhanced photorefractive effects in a hybrid photoconducting polymer-liq. crystal panel)

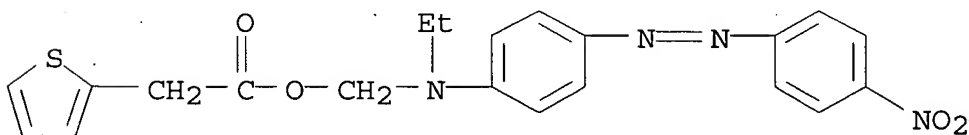
RN 209803-63-4 ZCA

CN 2-Thiopheneacetic acid, [ethyl[4-[(4-nitrophenyl)azo]phenyl]amino]methyl ester, polymer with 3-heptylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 209803-62-3

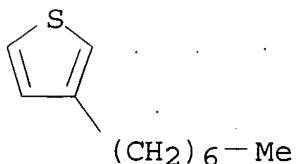
CMF C21 H20 N4 O4 S



CM 2

CRN 65016-61-7

CMF C11 H18 S



IT 209803-63-4

(enhanced photorefractive effects in a hybrid photoconducting polymer-liq. crystal panel)

L17 ANSWER 22 OF 40 ZCA COPYRIGHT 2003 ACS

128:257909 Preparation and characterizations of soluble regularly alternating polyazomethines from oligothienylenes. Destri, Silvia; Khotina, Irina A.; Porzio, William; Botta, Chiara (Istituto di Chimica delle Macromolecole del CNR, Milan, 20133, Italy). Optical Materials (Amsterdam), 9(1-4), 411-415 (English) 1998. CODEN: OMATET. ISSN: 0925-3467. Publisher: Elsevier Science B.V..

AB Oligothienylene dialdehydes and related sol. copolymers in which thienylene segments regularly alternate with phenylene portions linked by azomethine moieties were prepd. The polymer series with three, six and eight thienylene residues showed electronic confinement in low-gap segments (thienylenic). Self-assembled structures of oligomers can be obtained either by evapn. in high vacuum or by a proper thermal treatment of spin coated films, depending on the mol. length. Polymers prepd. by different synthetic routes show different thermal and structural properties as a function of the ratio of two possible isomers at imino linkages. The degree of order also influences the optical properties; in fact, luminescence data are strictly related to the percentage of the two isomers.

IT 189148-17-2P 189148-18-3P 189148-20-7P

189148-21-8P 189148-23-0P 189148-24-1P

(mol. structure effects on luminescence and liq. cryst. properties of sol. regularly alternating poly(azomethine thienylene)s)

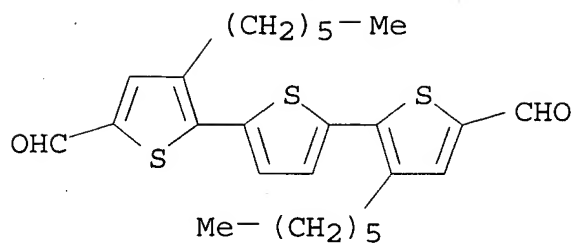
RN 189148-17-2 ZCA

CN [2,2':5',2''-Terthiophene]-5,5''-dicarboxaldehyde, 3,3''-dihexyl-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 189148-16-1

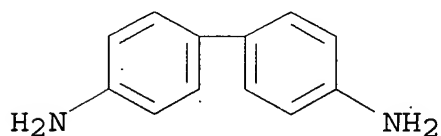
CMF C26 H32 O2 S3



CM 2

CRN 92-87-5

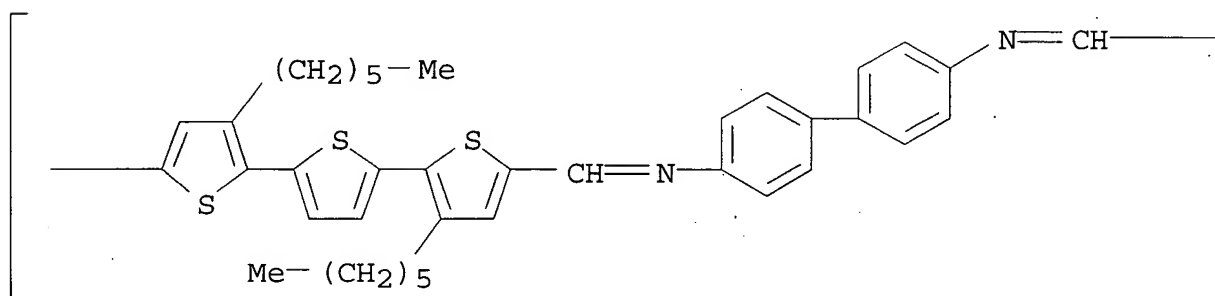
CMF C12 H12 N2



RN 189148-18-3 ZCA

CN Poly[(3,3'-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)methylidynenitrilo[1,1'-biphenyl]-4,4'-diyl nitrilomethylidyne]
(9CI) (CA INDEX NAME)

PAGE 1-A



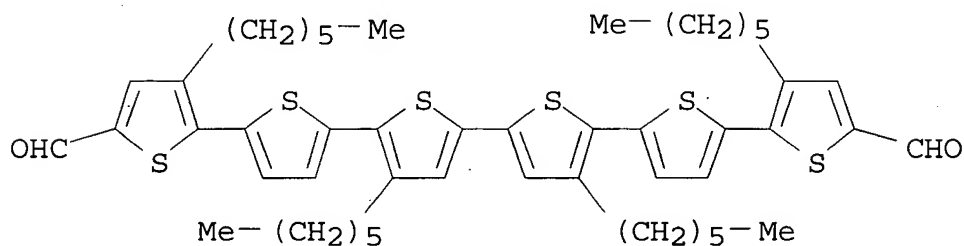
PAGE 1-B

] n

RN 189148-20-7 ZCA
 CN [2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene]-
 3,3''''-dicarboxaldehyde, 3,3'',3''',4''-tetrahexyl-, polymer
 with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

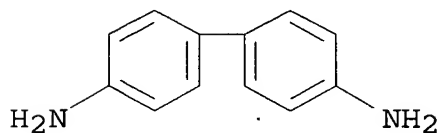
CM 1

CRN 189148-19-4
 CMF C50 H62 O2 S6



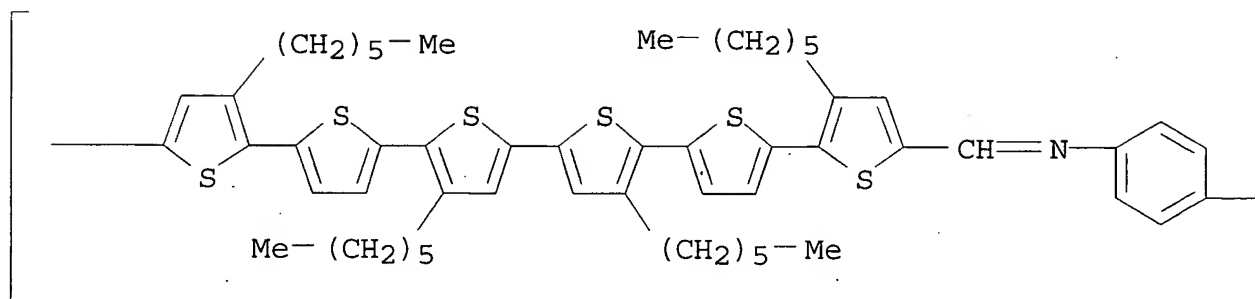
CM 2

CRN 92-87-5
 CMF C12 H12 N2

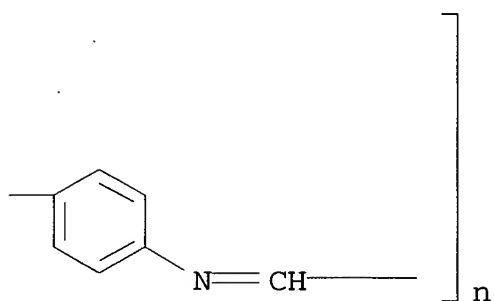


RN 189148-21-8 ZCA
 CN Poly[(3,3'',3''',4''-tetrahexyl[2,2':5',2'':5'',2''':5''',2''':5'''-sexithiophene]-3,3''''-diyl)methylidynenitrilo[1,1'-
 biphenyl]-4,4'-diyl]nitrilomethylidyne] (9CI) (CA INDEX NAME)

PAGE 1-A



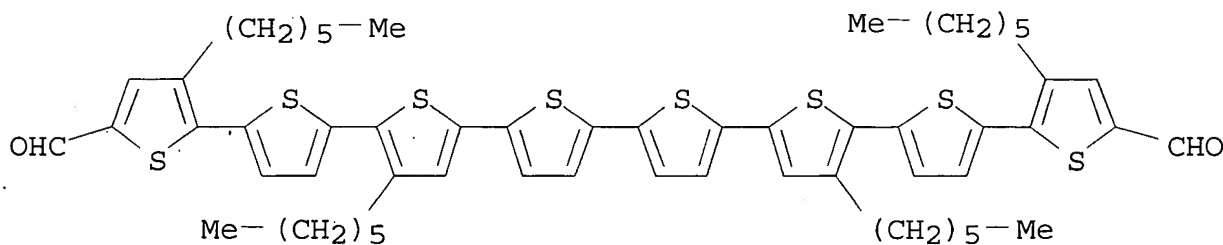
PAGE 1-B



RN 189148-23-0 ZCA
 CN [2,2':5',2'':5'',2''':5''',2''':5''',2''':5''',2''':5'',5''''',
 ,2''''''-Octithiophene]-5,5''''''-dicarboxaldehyde,
 3,3'',4''''',3''''''-tetrahexyl-, polymer with [1,1'-biphenyl]-4,4'-
 diamine (9CI) (CA INDEX NAME)

CM 1

CRN 189148-22-9
 CMF C58 H66 O2 S8

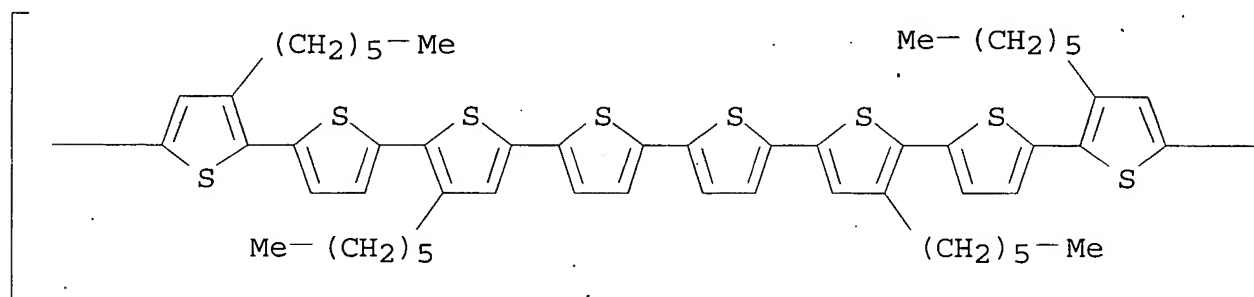


CM 2

CRN 92-87-5

Nc1ccc(cc1)-c2ccc(N)cc2

PAGE 1-A


$$\left[\text{—CH=N—C}_6\text{H}_4\text{—C}_6\text{H}_4\text{—N=CH—} \right]_n$$

L17 ANSWER 23 OF 40 ZCA COPYRIGHT 2003 ACS
128:115313 3-Hexyl Tetra-Substituted Sesquithienylene-Phenylene
Polyazomethines with High Molecular Weight. Mechanistic
Considerations. Destri, Silvia; Khotina, Irina A.; Porzio, William

(Istituto di Chimica delle Macromolecole, C.N.R., Milan, I-20133, Italy). *Macromolecules*, 31(4), 1079-1086 (English) 1998. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB The synthesis and characterization of copolymers constituted by the periodic alternation of six thienylenic and two phenylenic moieties linked by azomethine groups are reported. The azeotropic polycondensation used for this prepn. yields higher mol. wt. but sterically more disordered copolymers. By ^1H NMR expts. syn and anti isomers at imine linkages were evidenced. Mechanistic considerations on the different synthetic routes followed in polyazomethine prepn. imply the lack of a polar control on the formation of the syn isomer. The capability of the substituents to rotate around the C-N bond of the intermediate is related to the overall bulkiness of the mols. Due to their mol. wt., optical quality films were obtained either free-standing or spin-coated from tetrachloroethane solns. The solid-state aggregation was investigated by XRD techniques, indicating for properly annealed samples some liq. crystal character, in agreement with microscopy observations, in fact a smectic or nematic arrangement was detected as a function of syn content. A proper control of anti/syn content in the copolymer allows a noticeable tuning in the photoluminescence spectra.

IT 189148-17-2P 189148-18-3P 189148-20-7P

189148-21-8P 189148-23-0P 189148-24-1P

(prepn. and characterization of high mol. wt. 3-hexyl tetra-substituted sesquithienylene-phenylene polyazomethines)

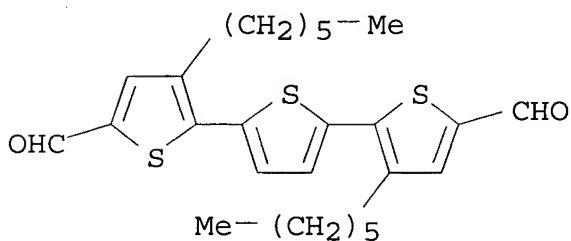
RN 189148-17-2 ZCA

CN [2,2':5',2''-Terthiophene]-5,5''-dicarboxaldehyde, 3,3''-dihexyl-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 189148-16-1

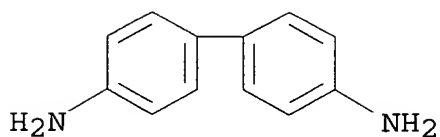
CMF C26 H32 O2 S3



CM 2

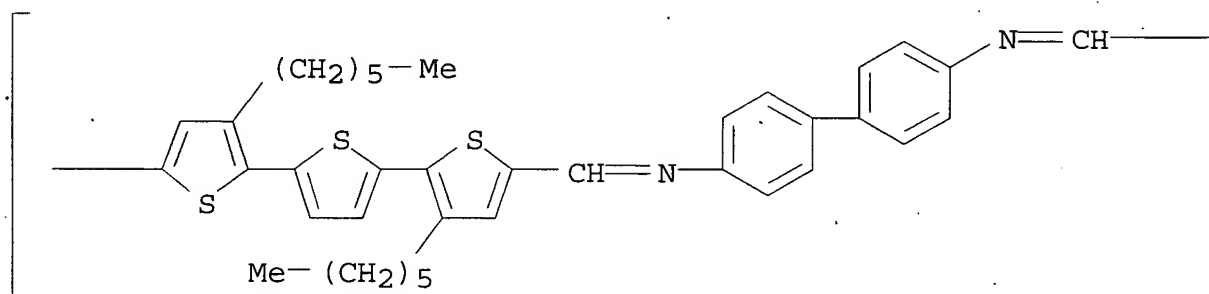
CRN 92-87-5

CMF C12 H12 N2



RN 189148-18-3 ZCA
 CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-
 diyl)methylidynenitrilo[1,1'-biphenyl]-4,4'-diylnitrilomethylidyne]
 (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

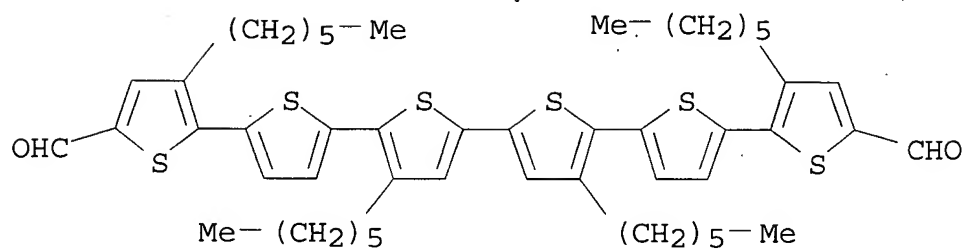


RN 189148-20-7 ZCA
 CN [2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene]-
 3,3''''-dicarboxaldehyde, 3,3'',3''',4''-tetrahexyl-, polymer
 with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 189148-19-4

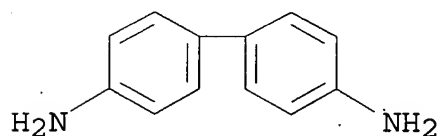
CMF C50 H62 O2 S6



CM 2

CRN 92-87-5

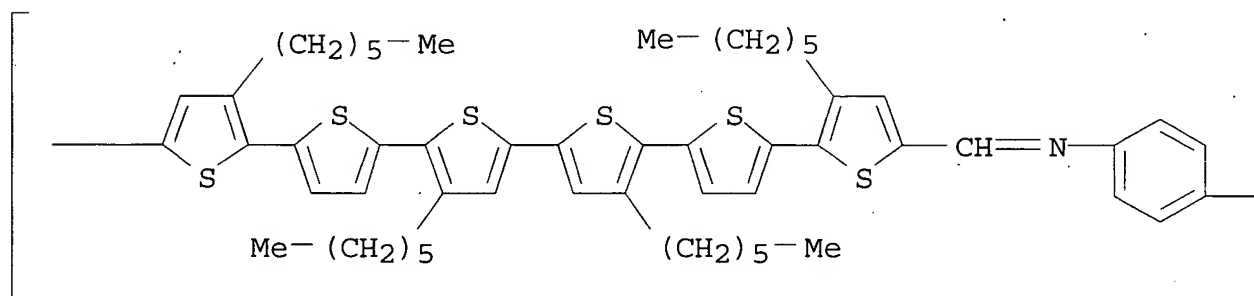
CMF C12 H12 N2



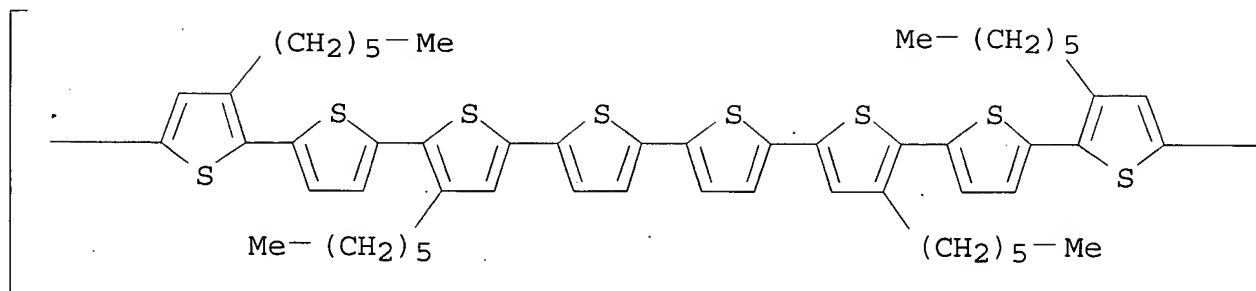
RN 189148-21-8 ZCA

CN Poly[(3,3'',3''''',4'''-tetrahexyl[2,2':5',2'':5'',2''':5''',2''':5''':5''',2''':5''''-sexithiophene]-3,3'''''-diyl)methylidynenitrilo[1,1'-biphenyl]-4,4'-diylnitrilomethylidyne] (9CI) (CA INDEX NAME)

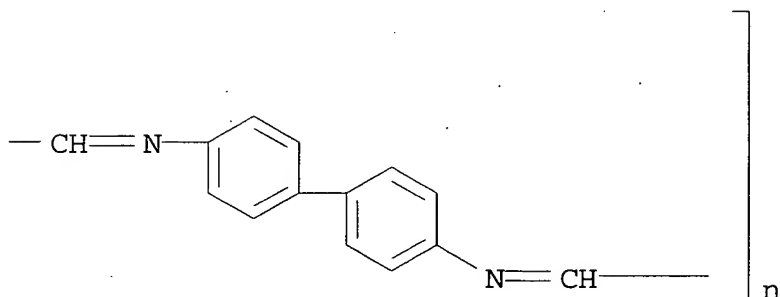
PAGE 1-A



PAGE 1-A



PAGE 1-B



IT 189148-17-2P 189148-18-3P 189148-20-7P
 189148-21-8P 189148-23-0P 189148-24-1P
 (prepn. and characterization of high mol. wt. 3-hexyl
 tetra-substituted sesquithienylene-phenylene polyazomethines)

L17 ANSWER 24 OF 40 ZCA, COPYRIGHT 2003 ACS
 128:115312 Synthesis and Characterization of 3-Hexyl Multisubstituted
 Thienylene-phenylene Polyazomethines. Olinga, Thomas E.; Destri,
 Silvia; Botta, Chiara; Porzio, William; Consonni, Roberto (Istituto
 di Chimica delle Macromolecole/MITER, C.N.R., Milan, I-20133,
 Italy). Macromolecules, 31(4), 1070-1078 (English) 1998. CODEN:
 MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB The synthesis and characterization of the series of polymers
 constituted by the periodic alternation of thienylenic and
 phenylenic moieties linked by azomethines groups are reported. The
 chem. structures were detd. by 1H NMR, FT-IR, mass, and GPC
 analyses; while the electronic properties in the neutral state were
 studied by UV-vis spectroscopy in both soln. and the solid state.
 Thermal characterizations, performed on the polymer series, using TG
 and DSC analyses indicated stability up to 400 .degree.C and no m.p.
 also due to a postpolymn. process. The solid-state aggregation was
 investigated by XRD spectroscopy, revealing for the
 six-thienylenic-ring term a semicryst. arrangement, after a proper

annealing together with a nematic mesophase at temps. higher than 180 .degree.C.

IT 189148-17-2P 189148-18-3P 189148-20-7P

189148-21-8P 189148-23-0P 189148-24-1P

(prepn. and characterization of 3-hexyl multisubstituted thienylene-phenylene polyazomethines)

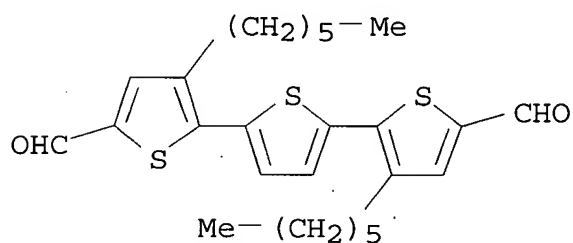
RN 189148-17-2 ZCA

CN [2,2':5',2''-Terthiophene]-5,5''-dicarboxaldehyde, 3,3''-dihexyl-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 189148-16-1

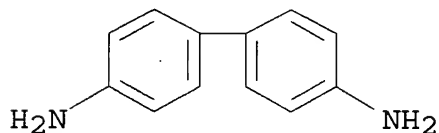
CMF C26 H32 O2 S3



CM 2

CRN 92-87-5

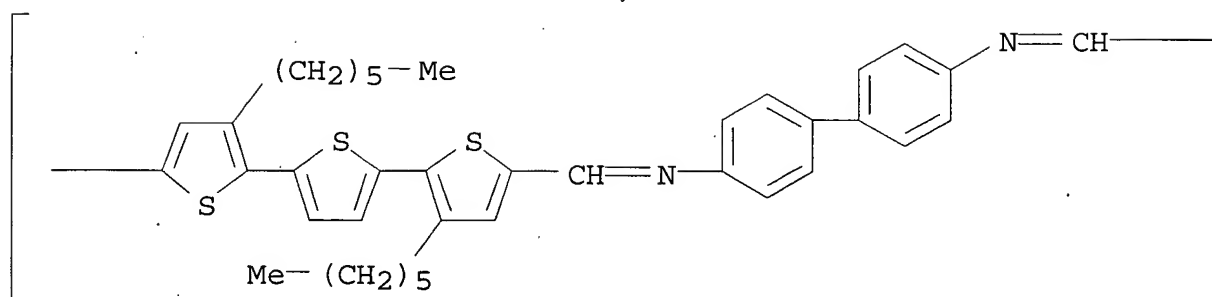
CMF C12 H12 N2



RN 189148-18-3 ZCA

CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)methylidynenitrilo[1,1'-biphenyl]-4,4'-diyl]nitrilomethylidyne] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

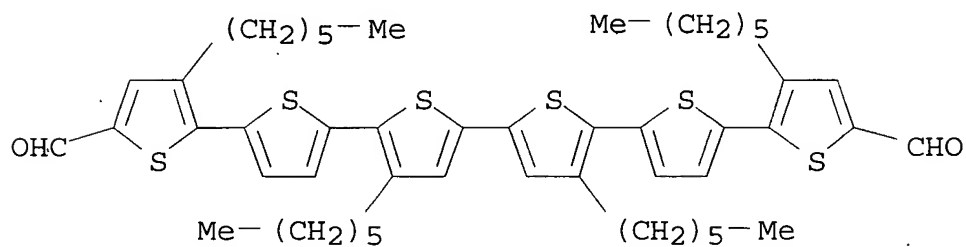


RN 189148-20-7 ZCA
 CN [2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene]-
 3,3''''-dicarboxaldehyde, 3,3'',3''''',4''''-tetrahexyl-, polymer
 with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

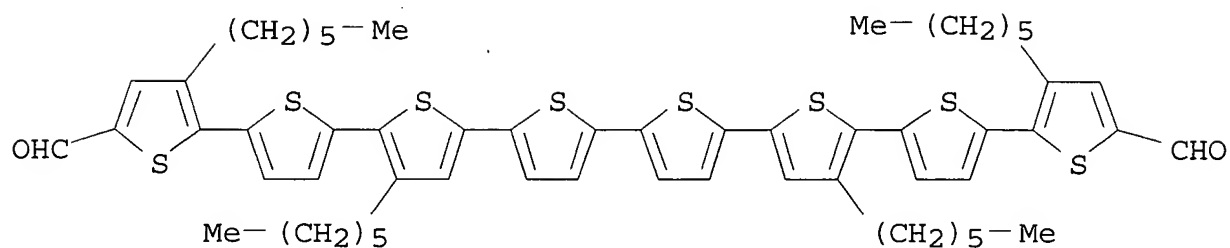
CRN 189148-19-4

CMF C50 H62 O2 S6



CM 2

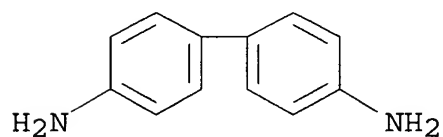
CRN 92-87-5



CM · 2

CRN 92-87-5

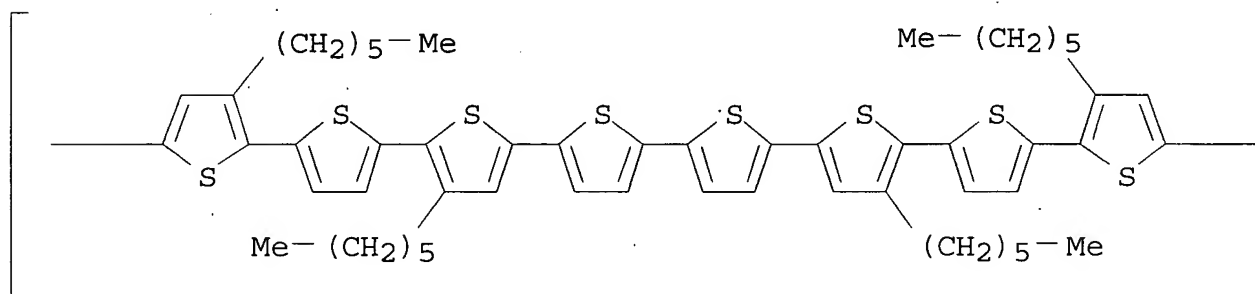
CMF C12 H12 N2



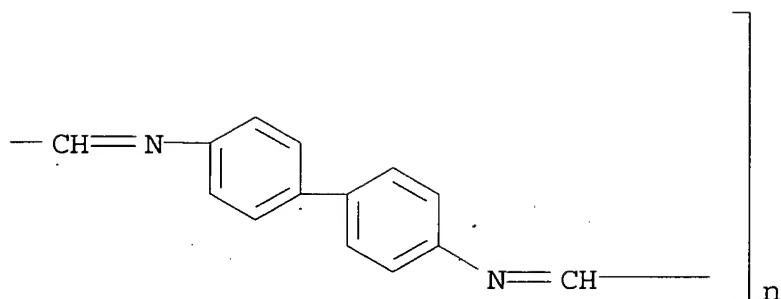
RN 189148-24-1 ZCA

CN Poly[(3,3'',4''''',3''''''-tetrahexyl[2,2':5'',2'':5'',2''':5''',2'':
5''',2''':5''',2''':5''',2''':5''',2''':5''']-octithiophene)-
5,5''''''-diyl)methylidynenitrilo[1,1'-biphenyl]-4,4'-
diylnitrilomethylidyne] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 189148-17-2P 189148-18-3P 189148-20-7P

189148-21-8P 189148-23-0P 189148-24-1P

(prepn. and characterization of 3-hexyl multisubstituted
thienylene-phenylene polyazomethines)

L17 ANSWER 25 OF 40 ZCA COPYRIGHT 2003 ACS

127:240896 Positive-tone conducting E-beam resists. Hupcey, Maggie A.Z.; Ober, Christopher K. (Department of Chemistry, Cornell University, Ithaca, NY, 14853, USA). Proceedings of SPIE-The International Society for Optical Engineering, 3048(Emerging Lithographic Technologies), 100-104 (English) 1997. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB Many lithog. methods are being examd. for high throughput, sub-0.15 .mu.m lithog. including electron-beam lithog. With current resist materials, high throughput and resolu. is limited by charging of the insulating resist which leads to image distortion of the pattern. We have developed a new family of resists based upon graft copolymers of PMMA and poly(hexylthiophene) that offer fast (<30 .mu.C/cm2) pos.-tone imaging with the ability to provide for charge dissipation.

IT 195325-09-8P

(lithog. pos.-tone imaging electron-beam resists based on graft copolymers of PMMA and poly(hexylthiophene))

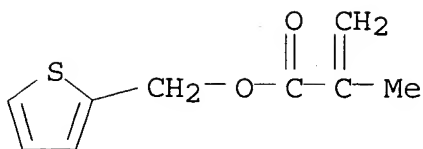
RN 195325-09-8 ZCA

CN 2-Propenoic acid, 2-methyl-, methyl ester, polymer with 3-hexylthiophene and 2-thienylmethyl 2-methyl-2-propenoate, graft (9CI) (CA INDEX NAME)

CM 1

CRN 105581-49-5

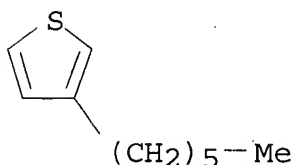
CMF C9 H10 O2 S



CM 2

CRN 1693-86-3

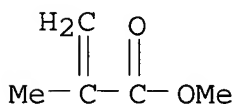
CMF C10 H16 S



CM 3

CRN 80-62-6

CMF C5 H8 O2



IT 195325-09-8P

(lithog. pos.-tone imaging electron-beam resists based on graft copolymers of PMMA and poly(hexylthiophene))

L17. ANSWER 26 OF 40 ZCA COPYRIGHT 2003 ACS

127:136295 State of Gelation of Fully Conjugated Conducting Gels. Gel Fraction, Swelling, and Nuclear Magnetic Relaxation. Viallat, Annie; Pepin-Donat, Brigitte (Laboratoire de spectrometrie physique, Universite J. Fourier, Saint Martin d'Heres, 38402, Fr.). Macromolecules, 30(16), 4679-4687 (English) 1997. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB Statistical properties of well-defined fully conjugated poly(3-octylthiophene) (POT) gels are explored above glass transition and fusion temps. by varying the cross-link functionality, f , and the cross-link concn., R_i . Four series of gels are prepd. using four different crosslinking agents. The state of gel connectivity, characterized by the gel fraction is found to depend on the distance to the gelation threshold, ϵ , expressed within a mean-field percolation approach. In the range of explored cross-link densities, ^1H NMR and swelling expts. reveal

that the active structural strands of both dry and swollen gels are the linear chain segments defined by adjacent cross-links. These segments are disengaged from one another in swollen gels. The two variables, chain segment contour length and ϵ , are functions of the product fR_i . This parameter is the relevant variable for the description of POT gel structures: master curves of the quantities gel fraction, swelling ratio, and $1H$ transverse relaxation rate are obtained vs. fR_i .

IT 162258-63-1

(state of gelation and NMR studies of fully conjugated conducting crosslinked poly(octylthiophene) gels)

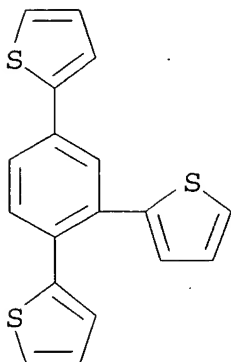
RN 162258-63-1 ZCA

CN Thiophene, 2,2',2''-(1,2,4-benzenetriyl)tris-, polymer with 3-octylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 161299-84-9

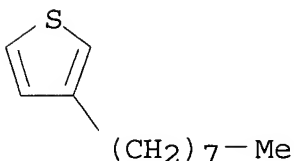
CMF C18 H12 S3



CM 2

CRN 65016-62-8

CMF C12 H20 S



IT 162258-63-1

(state of gelation and NMR studies of fully conjugated conducting crosslinked poly(octylthiophene) gels)

L17 ANSWER 27 OF 40 ZCA COPYRIGHT 2003 ACS

126:293976 Thiophene based polyazomethines as a prototype of organic polymeric superlattices. Destri, S.; Porzio, W.; Khotina, I.; Olinga, T. E. (Istituto di Chimica delle Macromolecole del C.N.R., via E. Bassini 15, Milan, 20133, Italy). Synthetic Metals, 84(1-3), 219-220 (English) 1997. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB A series of regularly alternating copolymers, constituted by thienylenic segments (low E_g) and phenylenic sequences (high E_g) linked together by azomethines groups, were prepd. and characterized molecularly and spectroscopically. Some evidence of electronic confinement, typical of superlattice structures, was obsd. The electronic localization increased when the periodicity of the system was enlarged by increaseing the mol. wt. The introduction of alkyl side chains to increase the mol wt. induces anti-syn disorder in the polymeric backbone while reducing the cryst. packing aptness. The alkyl groups did not affect the optical properties of the copolymers.

IT 189148-17-2P 189148-18-3P 189148-20-7P
189148-21-8P 189148-23-0P 189148-24-1P
(prepn., mol., and spectroscopic characterization of oligothiophene-contg. polyazomethines)

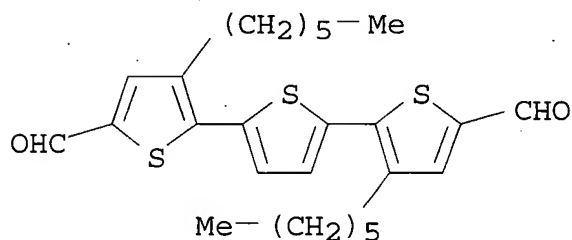
RN 189148-17-2 ZCA

CN [2,2':5',2''-Terthiophene]-5,5''-dicarboxaldehyde, 3,3''-dihexyl-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 189148-16-1

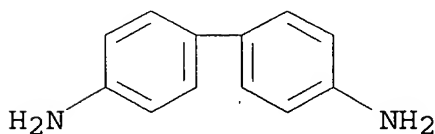
CMF C26 H32 O2 S3



CM 2

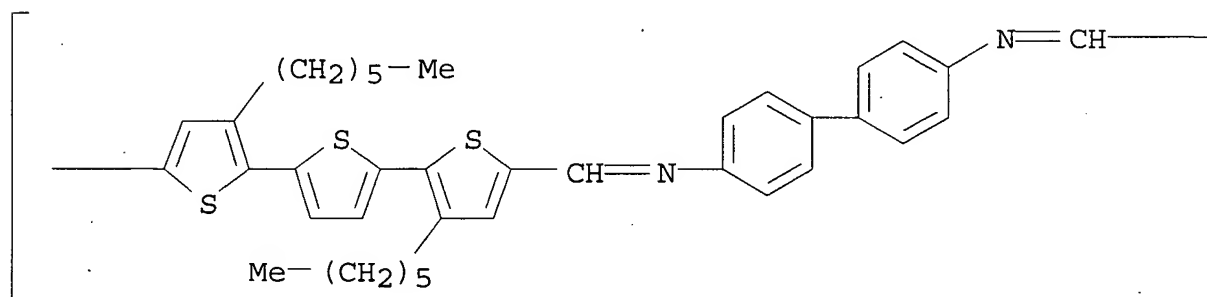
CRN 92-87-5

CMF C12 H12 N2



RN 189148-18-3 ZCA
 CN Poly[(3,3''-dihexyl[2,2':5',2''-terthiophene]-5,5''-
 diyl)methylidynenitrilo[1,1'-biphenyl]-4,4'-diylnitrilomethylidyne]
 (9CI) (CA INDEX NAME)

PAGE 1-A



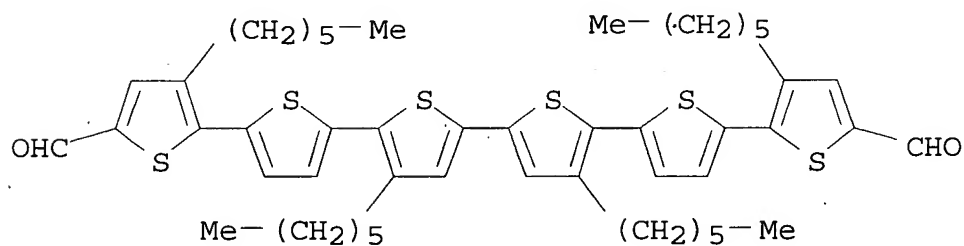
PAGE 1-B

]

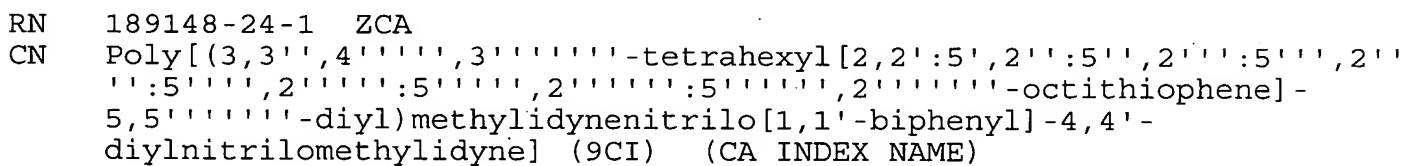
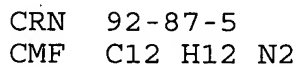
RN 189148-20-7 ZCA
 CN [2,2':5',2'':5'',2''':5''',2''':5''',2''':5'''-Sexithiophene]-
 3,3''''-dicarboxaldehyde, 3,3'',3''',4''-tetrahexyl-, polymer
 with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 189148-19-4
 CMF C50 H62 O2 S6

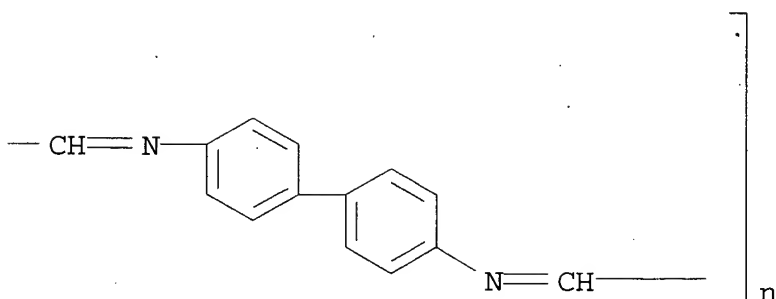


CRN 189148-22-9
CMF C58 H66 O2 S8



The chemical structure shows a linear chain of eight thiophene rings connected by single bonds. The first and eighth rings have a substituent group $(CH_2)_5-Me$ at the 2-position. The second and seventh rings have a substituent group $Me-(CH_2)_5$ at the 5-position. The third, fourth, fifth, and sixth rings are unsubstituted. The chain is terminated by single bonds at the 4-position of the first ring and the 4-position of the eighth ring.

PAGE 1-B



IT 189148-17-2P 189148-18-3P 189148-20-7P

189148-21-8P 189148-23-0P 189148-24-1P

(prepn., mol., and spectroscopic characterization of
oligothiophene-contg. polyazomethines)

L17 ANSWER 28 OF 40 ZCA COPYRIGHT 2003 ACS

126:293975 Gels of poly(3-n-octylthiophene): influence of the connectivity on the properties. Pepin-Donat, B.; Viallat, A.; Rebourt, E.; Nechtschein, M.; Sixou, B. (CEA-Grenoble/Departement de Recherche Fondamentale sur la Matiere Condensee/SI3M/Laboratoire de Physique des Metaux Synthetiques, 17 rue des Martyrs, Grenoble, 38054/9, Fr.). Synthetic Metals, 84(1-3), 217-218 (English) 1997. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB Series of gels covering a wide range of crosslink ratios were obtained by connecting poly(3-octylthiophene) chains with trithienylbenzenes. We have obsd. the variation of the swelling ratio, the glass transition temp. and the mol. wt. of the undoped networks with the crosslink ratio. These quantities exhibit a continuous change. This result is an indication of the homogeneity of the gel structures. Also, we point out the characteristics of the transport properties related to the connectivity.

IT 162258-63-1P, 3-Octylthiophene-1,2,4-tris-2-thienylbenzene copolymer

(prepn. and properties of crosslinked polyoctylthiophene gels)

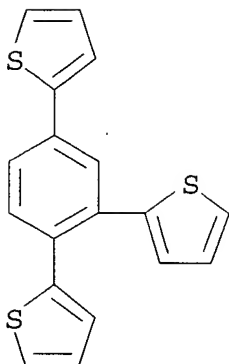
RN 162258-63-1 ZCA

CN Thiophene, 2,2',2''-(1,2,4-benzenetriyl)tris-, polymer with 3-octylthiophene (9CI) (CA INDEX NAME)

CM 1

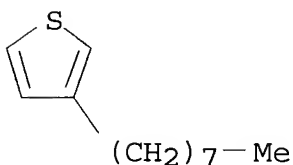
CRN 161299-84-9

CMF C18 H12 S3



CM 2

CRN 65016-62-8
CMF C12 H20 S



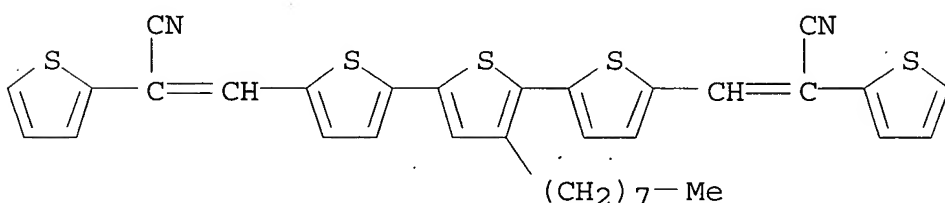
IT 162258-63-1P, 3-Octylthiophene-1,2,4-tris-2-thienylbenzene
copolymer
(prepn. and properties of crosslinked polyoctylthiophene gels)

L17 ANSWER 29 OF 40 ZCA COPYRIGHT 2003 ACS

126:144634 Thiophene-based conjugated oligomers and polymers with high electron affinity. Ho, Hoang Anh; Brisset, Hugues; Elandalousi, El Hadj; Frere, Pierre; Roncali, Jean (Ingenierie Moleculaire Materiaux Organiques, Universite Angers, Angers, F-49045, Fr.). Advanced Materials (Weinheim, Germany), 8(12), 990-994 (English) 1996. CODEN: ADVMEW. ISSN: 0935-9648. Publisher: VCH.

AB The prepn. of a series of .pi.-conjugated oligomers contg. 3, 4, and 5 heterocycles and 2 CN groups at various positions of the ethylene linkage is reported. Whereas this structural modification leads to a pos. shift of the redn. potential, the no. and reversibility of the redn. steps strongly depend on the position of the CN groups and on the length of the oligomer. The anal. of the electropolymn. behavior of the oligomers showed that although some of them are difficult to polymerize the presence of both the CN groups and solubilizing substituents allows the polymn. of 2 compds. into low-bandgap conjugated polymers. Data on absorption max., HOMO-LUMO gap, cyclic voltammograms corresponding to the redn. of the oligomers, potentiometric electrodeposition curves, and electronic absorption spectra of the oligomers are presented.

IT **186454-97-7P**
 (electropolymn. prepn. of cyano-substituted thiophene oligomers)
 RN 186454-97-7 ZCA
 CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-[(3'-octyl[2,2':5',2''-terthiophene]-5,5''-diyl)dimethyldiynyl]bis-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 186454-94-4
 CMF C34 H30 N2 S5



IT **186454-97-7P**
 (electropolymn. prepn. of cyano-substituted thiophene oligomers)

L17 ANSWER 30 OF 40 ZCA COPYRIGHT 2003 ACS
 126:118279 Aromatic copolyamides and copolyesters with vinylenearylene and terthiophene fragments in the polymer chain: synthesis and photophysical properties. Novikova, T. S.; Barashkov, N. N.; Yassar, A.; Hmyene, M.; Ferraris, J. P. (Department of Chemistry, University of Texas at Dallas, PO Box 830688, Richardson, TX, 75083-0688, USA). Synthetic Metals, 83(1), 47-55 (English) 1996. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

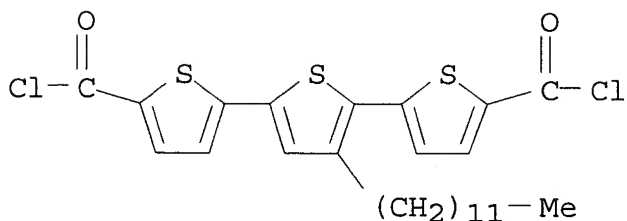
AB A series of copoly(m-phenyleneisophthalamides) and copoly(m-phenyleneisopropylidenedi-4,4'-dicarboxylates) with fragments of 2,6-distyrylnaphthalene, 9,10-distyrylanthracene, 5,5''-distyryl-2,2':5',2''-terthiophene and 3'-dodecyl-2,2':5',2''-terthiophene was prepd. The absorption, excitation and fluorescence spectra of these copolymers as well as corresponding model compds. were studied and compared. The actual molar ratios of luminophoric and non-luminophoric moieties in the copolymer structure were measured by comparison to model compds. The photophys. properties of the investigated polymers suggest that these materials could be good candidates for the fabrication of efficient blue and green light-emitting diodes.

IT **186129-48-6P**
 (synthesis and photophys. properties of arom. copolyamides and copolyesters with vinylenearylene and terthiophene fragments in the polymer chain)
 RN 186129-48-6 ZCA
 CN [2,2':5',2''-Terthiophene]-5,5''-dicarbonyl dichloride, 3'-dodecyl-, polymer with 1,3-benzenedicarbonyl dichloride and 4,4'-(1-methylethylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 186129-36-2

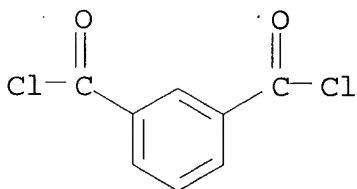
CMF C26 H30 Cl2 O2 S3



CM 2

CRN 99-63-8

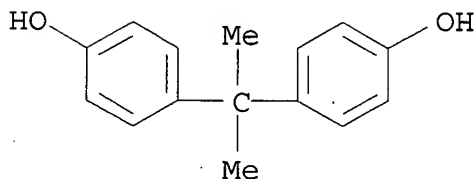
CMF C8 H4 Cl2 O2



CM 3

CRN 80-05-7

CMF C15 H16 O2



IT 186129-48-6P

(synthesis and photophys. properties of arom. copolyamides and copolyesters with vinylenearylene and terthiophene fragments in the polymer chain)

L17 ANSWER 31 OF 40 ZCA COPYRIGHT 2003 ACS

126:75520 Synthesis of a Novel Family of Electrochemically-Doped Vinyl Polymers Containing Pendant Oligothiophenes and Their Electrical and Electrochromic Properties. Imae, Ichiro; Nawa, Kazunari; Ohseido,

Yutaka; Noma, Naoki; Shirota, Yasuhiko (Department of Applied Chemistry Faculty of Engineering, Osaka University, Suita, 565, Japan). *Macromolecules*, 30(3), 380-386 (English) 1997. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB Novel electrochem.-doped vinyl polymers contg. 2,2':5',2'':5''',2''':5''''-quaterthiophene, 4',3''''-dioctyl-2,2':5',2'':5''',2''':5''''-quinquethiophene, and 4',3''''-dioctyl-2,2':5',2'':5''',2''':5''''-sexithiophene as pendant groups were prep'd. by anodic polymns. of the corresponding new vinyl monomers in the presence of tetra-n-butylammonium perchlorate as a supporting electrolyte, and their elec. and electrochromic properties were investigated. The electrochem.-doped polymers, which were obtained as deeply-colored, lustrous films on the surface of the working electrode, were identified as radical-cation salts of pendant oligothiophenes with ClO₄⁻ as a dopant, having a partially crosslinked structure due to the coupling reaction of the radical cation of the pendant oligothiophene moiety. The elec. cond. of these electrochem.-doped polymers increased with increasing conjugation length of the pendant oligothiophenes; the polymer contg. the pendant sexithiophene group exhibited a room-temp. cond. of ca. 10⁻⁴ S cm⁻¹ with an activation energy of 0.25 eV. These polymers undergo a reversible clear color change from green to yellow and vice versa on electrochem. dedoping and doping, constituting a novel class of potential electrochromic materials.

IT 162475-18-5P 185350-32-7P

(prepn. of electrochem.-doped vinyl polymers contg. pendant oligothiophenes and their elec. and electrochromic properties)

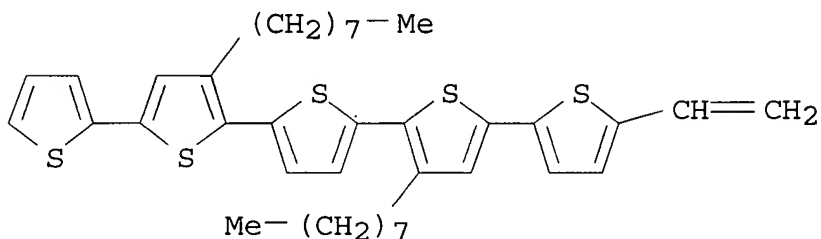
RN 162475-18-5 ZCA

CN 2,2':5',2'':5''',2''':5''''-Quinquethiophene,
5-ethenyl-3''''',4'-dioctyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 162475-17-4

CMF C38 H46 S5



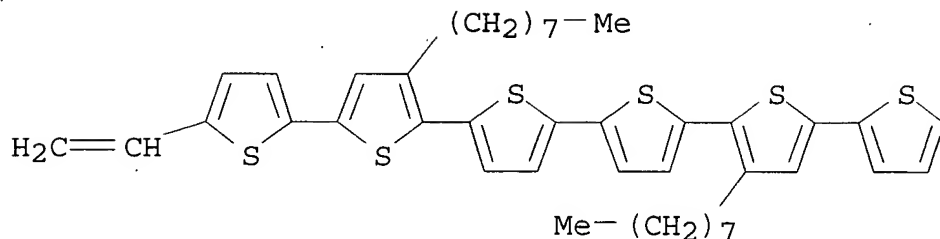
RN 185350-32-7 ZCA

CN 2,2':5',2'':5''',2''':5''''-Sexithiophene,
5-ethenyl-3''''',4'-dioctyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 185350-31-6

CMF C42 H48 S6



IT 162475-18-5P 185350-32-7P

(prepn. of electrochem.-doped vinyl polymers contg. pendant oligothiophenes and their elec. and electrochromic properties)

L17 ANSWER 32 OF 40 ZCA COPYRIGHT 2003 ACS

123:315123 Spectroscopy and Photophysics of Some Oligomers and Polymers Derived from Thiophenes. Belletete, Michel; Mazerolle, Louise; Desrosiers, Natalie; Leclerc, Mario; Durocher, Gilles (Departement de Chimie, Universite de Montreal, Montreal, QC, H3C3J7, Can.). Macromolecules, 28(25), 8587-97 (English) 1995. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB A series of bithiophene and terthiophene derivs. and their resp. polymers have been prep'd. The absorption and fluorescence spectra, quantum yields, and lifetimes of these derivs. in soln. are studied and compared. The bandwidths of the absorption and fluorescence profiles of the different derivs. are used to discuss the geometry changes occurring from one mol. to the other in the ground and excited states. Increasing the chain length and/or substitution of bithiophene and terthiophene at both ends of the mol. with a carbonyl chloride group increases the planarity of the mols. in both their ground and excited states by improving the electronic delocalization throughout the mol. frame. Comparison between the absorption and fluorescence spectra has proved to be a good tool to discover conformational changes occurring during the relaxation of the excited state. All the mols. investigated show geometrical changes from a twisted ground state to a more planar conformation in the excited state. A radiationless torsional mechanism and intersystem crossing processes are involved in the excited state relaxation of the various mols. Incorporation of substituted bithiophene and terthiophene units in arom. polyesters have been made and the optical and photophys. properties of these polymers are studied. It is shown that the bithiophene and terthiophene units are perfectly isolated in the polymeric chain. The photophys. properties of the polyesters make these materials good candidates for the fabrication of efficient blue-light-emitting diodes.

IT 170660-76-1P 170660-77-2P

(spectroscopy and photophysics of some oligomers and polymers derived from thiophenes)

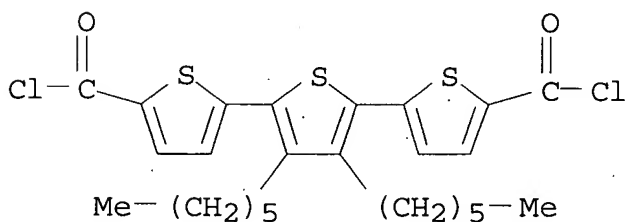
RN 170660-76-1 ZCA

CN [2,2':5',2''-Terthiophene]-5,5''-dicarbonyl dichloride,
3',4'-dihexyl-, polymer with 1,4-benzenediol (9CI) (CA INDEX NAME)

CM 1

CRN 170660-73-8

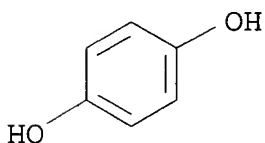
CMF C26 H30 Cl2 O2 S3



CM 2

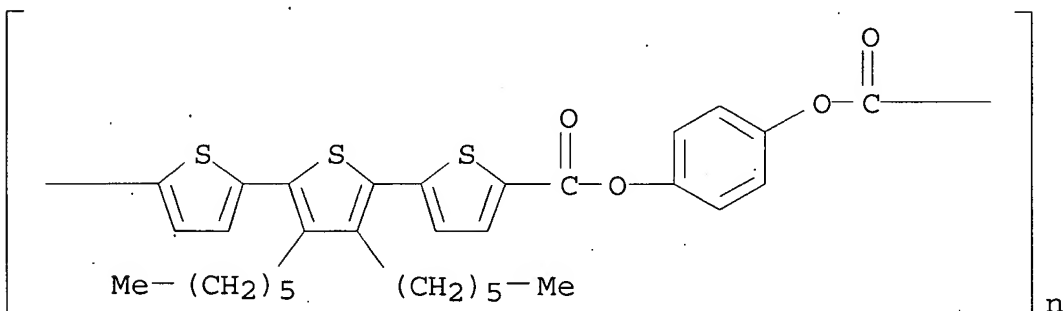
CRN 123-31-9

CMF C6 H6 O2



RN 170660-77-2 ZCA

CN Poly[(3',4'-dihexyl[2,2':5',2''-terthiophene]-5,5''-diyl)carbonyloxy-
1,4-phenyleneoxycarbonyl] (9CI) (CA INDEX NAME)



IT 170660-76-1P 170660-77-2P

(spectroscopy and photophysics of some oligomers and polymers
derived from thiophenes)

L17 ANSWER 33 OF 40 ZCA COPYRIGHT 2003 ACS

123:70355 Soluble, conductive copolymer, the preparation and use

thereof. De Ruiter, Barteld; Kock, Theodorus Johannes Jacobu
(Nederlandse Organisatie voor Toegepast-Natuurweten, Neth.). PCT
Int. Appl. WO 9500882 A1 19950105, 15 pp. DESIGNATED STATES: W:
AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU,
JP, KE, KG, KP, KR, KZ, LK, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL,
PT, RO, RU, SD, SE, SK, TJ, TT, UA, US, UZ, VN; RW: AT, BE, BF, BJ,
CF, CG, CH, CI, CM, DE, DK, ES, FR, GA, GB, GR, IE, IT, LU, MC, ML,
MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.
APPLICATION: WO 1994-NL144 19940620. PRIORITY: NL 1993-1085
19930622.

AB A sol. copolymer is described which is conductive as a result of the
presence of a conjugated system, which copolymer contains, in side
chains, functional groups as well as groups conferring soly., it
being possible for the polymer chains to be covalently bonded to 1
another via the functional groups, which yields a cured copolymer
network. A method for the prepn. of the polymer, a method for the
prodn. of a conductive pattern by metalization, preferably via an
electrolytic process on a conductive pattern, and a conductive
pattern obtained in this way are also described.

IT 165179-10-2

(Sol. copolymer for conductive pattern)

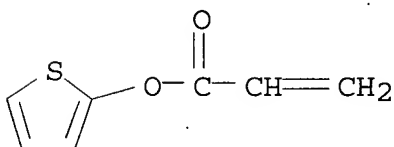
RN 165179-10-2 ZCA

CN 2-Propenoic acid, 2-thienyl ester, polymer with 3-hexylthiophene
(9CI) (CA INDEX NAME)

CM 1

CRN 165179-09-9

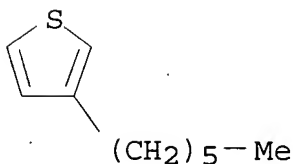
CMF C7 H6 O2 S



CM 2

CRN 1693-86-3

CMF C10 H16 S



IT 165179-10-2

(Sol. copolymer for conductive pattern)

L17 ANSWER 34 OF 40 ZCA COPYRIGHT 2003 ACS

123:57131 Conductive poly(n-octyl-3-thiophene) gels: gel fraction, swelling. Pepin-Donat, B.; Rebourt, E.; Viallat, A. (Cent. etudes nucleaires, CEA, Grenoble, 38054, Fr.). Journal de Chimie Physique et de Physico-Chimie Biologique, 92(4), 779-82 (English) 1995. CODEN: JCPBAN. ISSN: 0021-7689. Publisher: Elsevier.

AB This study concerns crosslinked poly(n-3-octyl-thiophene) gels. A classical percolation approach is proposed to define a variable which describes the state of gelation. This variable depends on the initial stoichiometry and on the crosslinks functionality. Master curves are obtained which relate the gel fraction to the percolation variable for the various types of used crosslinks. This approach suggests that the extent of the crosslinking reaction is greater than 99%. These gels can swell in chloroform. First results suggest that the inverse of the swelling ratio increases linearly with the gel fraction.

IT 162258-63-1

(classical percolation approach to detn. of gel fraction and swelling of crosslinked conductive octylthiophene copolymers)

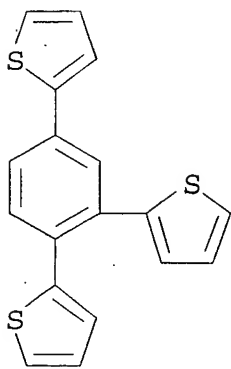
RN 162258-63-1 ZCA

CN Thiophene, 2,2',2''-(1,2,4-benzenetriyl)tris-, polymer with 3-octylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 161299-84-9

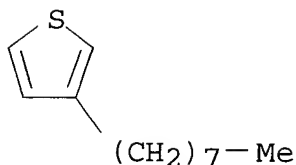
CMF C18 H12 S3



CM 2

CRN 65016-62-8

CMF C12 H20 S



IT 162258-63-1

(classical percolation approach to detn. of gel fraction and swelling of crosslinked conductive octylthiophene copolymers)

L17 ANSWER 35 OF 40 ZCA COPYRIGHT 2003 ACS

123:56726 Fully conjugated conductive gels: synthesis and first characterizations. Rebourt, E.; Pepin-Donat, B.; Dinh, E.; Nechtschein, M. (Cent. d'etudes nucleaires, CEA, Grenoble, 38054, Fr.). Journal de Chimie Physique et de Physico-Chimie Biologique, 92(4), 775-8 (English) 1995. CODEN: JCPBAN. ISSN: 0021-7689. Publisher: Elsevier.

AB Fully conjugated structures exhibiting a dimensionality >2 were prepd. by crosslinking poly(3-n-octylthiophene) chains with different trithienylbenzenes. Four trithienylbenzenes have been prepd. and characterized. They have been copolymd. with 3-n-octylthiophene in various concns. After reaction, a fully sol. fraction (in CHCl₃) and an insol. fraction were obtained except in two cases where only a fully sol. fraction was obtained. The insol. copolymers swell in apolar solvent (CHCl₃, toluene). The swelling ratio increases linearly with decreasing crosslink ratio, indicating that no segregation of the crosslinks occurs. The upper limit of the crosslink ratio in the insol. copolymers was detd. assuming that the fully sol. part consists of poly(3-n-octylthiophene) only. The doped insol. copolymers exhibit elec. conductivities similar to the one of poly(3-n-octylthiophene).

IT 162258-63-1P, 3-Octylthiophene-1,2,4-tris(2-thienyl)benzene copolymer

(prepn. and elec. cond. of crosslinked poly(octylthiophene) gels)

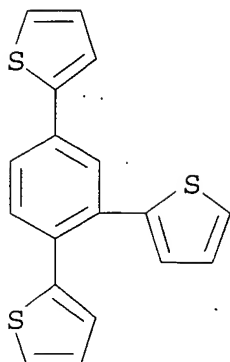
RN 162258-63-1 ZCA

CN Thiophene, 2,2',2''-(1,2,4-benzenetriyl)tris-, polymer with 3-octylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 161299-84-9

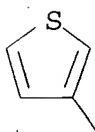
CMF C18 H12 S3



CM 2

CRN 65016-62-8

CMF C12 H20 S

(CH₂)₇-Me

IT **162258-63-1P**, 3-Octylthiophene-1,2,4-tris(2-thienyl)benzene
copolymer
(prepn. and elec. cond. of crosslinked poly(octylthiophene) gels)

L17 ANSWER 36 OF 40 ZCA. COPYRIGHT 2003 ACS

122:240964 Synthesis and electrical properties of novel electrochemically-doped vinyl polymers containing 'end-capped' quaterthiophene and quinquethiophene as pendant groups. Imae, Ichiro; Moriwaki, Kazuyuki; Nawa, Kazunari; Noma, Naoki; Shirota, Yasuhiko (Department of Applied Chemistry, Osaka Univ., Osaka, 565, Japan). Synthetic Metals, 69(1-3), 285-6 (English) 1995. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB For the purpose of developing a novel class of elec. conducting polymers, electrochem.-doped vinyl polymers contg. 'end-capped' quaterthiophene and quinquethiophene as pendant groups have been prepd. by electrolytic polymns. fo the corresponding vinyl monomers in dichloromethane contg. tetrabutylammonium perchlorate. The electrochem.-doped polymers were identified as partially oxidized radical-cation salts with ClO₄⁻ as a dopant, as evidenced from the electronic and IR absorption spectra and elemental anal. The electrochem.-doped polymers contg. 'end-capped' quaterthiophene (degree of doping: 49%) and quinquethiophene (degree of doping: 66%) as pendant groups exhibited room-temp. conductivities of 3 .times. 10⁻⁸ and 2 .times. 10⁻⁵ S cm⁻¹ with activation energies of 0.49 and

0.32 eV, resp.

IT 162475-18-5, 4',3'''-Dioctyl-5-vinyl-
 2,2':5',2'':5'',2''':5''',2''''-quinquethiophene homopolymer
 (elec. properties of electrochem.-doped)

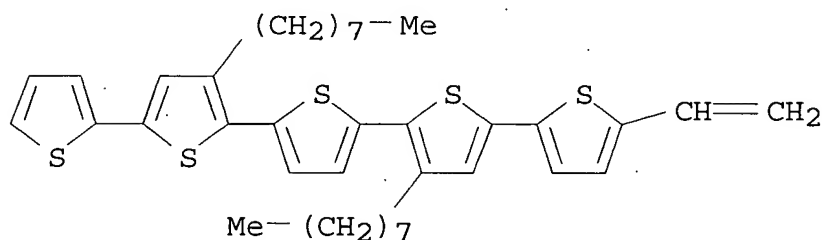
RN 162475-18-5 ZCA

CN 2,2':5',2'':5'',2''':5''',2''''-Quinquethiophene,
 5-ethenyl-3''',4'-dioctyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 162475-17-4

CMF C38 H46 S5



IT 162475-18-5, 4',3'''-Dioctyl-5-vinyl-
 2,2':5',2'':5'',2''':5''',2''''-quinquethiophene homopolymer
 (elec. properties of electrochem.-doped)

L17 ANSWER 37 OF 40 ZCA COPYRIGHT 2003 ACS

122:240628 Gels of poly(3-n-octylthiophenes). Part 2: Preparation, preliminary characterization. Rebourt, E.; Pepin-Donat, B.; Dinh, E.; Nechtschein, M. (Department de Recherche Fondamentale sur la Matiere Condensee, CEA, Grenoble, 38054, Fr.). Synthetic Metals, 69(1-3), 293-4 (English) 1995. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB We report the prepn. of reticulated poly(3-n-octylthiophenes) with various fully conjugated reticulation points. A first series of copolymers has been obtained with the same reticulation point by varying it concn. in the copolymer. Undoped copolymers have been characterized by their swelling ratio, x-ray diffraction, and ESR spectroscopy. The elec. cond. of the doped copolymers is reported.

IT 162258-63-1P
 (prepn. and characterization and elec. cond. of)

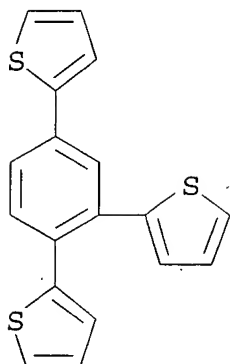
RN 162258-63-1 ZCA

CN Thiophene, 2,2',2''-(1,2,4-benzenetriyl)tris-, polymer with
 3-octylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 161299-84-9

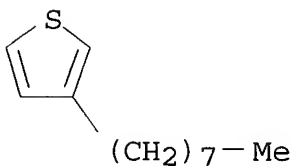
CMF C18 H12 S3



CM 2

CRN 65016-62-8

CMF C12 H20 S



IT 162258-63-1P

(prepn. and characterization and elec. cond. of)

L17 ANSWER 38 OF 40 ZCA COPYRIGHT 2003 ACS

122:215528 Gels of poly(3-n-octylthiophenes). Part 1: preparation of the reticulation points, characterization of their reactivity. Rebourt, E.; Pepin-Donat, B.; Dinh, E. (Department de Recherche Fondamentale sur la Matiere Condensee, CEA, Grenoble, 38054, Fr.). Synthetic Metals, 69(1-3), 291-2 (English) 1995. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB In order to prep. fractal or three-dimensional conducting gels, fully conjugated reticulation points were prepd. and copolymd. with 3-n-octylthiophene (I). The reactivity of the reticulation points with I was demonstrated by IR observation of the compds. obtained after oxidative polymn. of I in the presence of a high relative concn. of D-labeled reticulation points. The prepd. copolymers exhibit conductivities similar to the those of I homopolymer and are insol. but swell in apolar solvents.

IT 162258-63-1P

(prepn. and characterization of three-dimensional conducting poly(octylthiophene) gels)

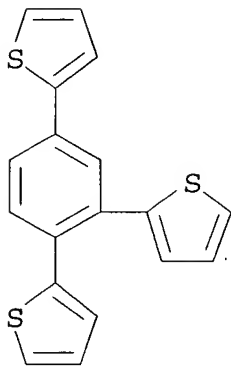
RN 162258-63-1 ZCA

CN Thiophene, 2,2',2''-(1,2,4-benzenetriyl)tris-, polymer with 3-octylthiophene.(9CI) (CA INDEX NAME)

CM 1

CRN 161299-84-9

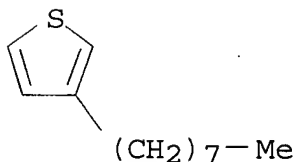
CMF C18 H12 S3



CM 2

CRN 65016-62-8

CMF C12 H20 S



IT 162258-63-1P

(prepn. and characterization of three-dimensional conducting poly(octylthiophene) gels)

L17 ANSWER 39 OF 40 ZCA COPYRIGHT 2003 ACS

122:215056 Property of poly(3-alkylthiophene-co-1,2-dithienylethylene) and its doping effect. Nakazono, Masahiro; Kawai, Tsuyoshi; Onoda, Mitsuyoshi; Yoshino, Katsumi (Department of Electronic Engineering, Osaka Univ., Suita, Japan). Technology Reports of the Osaka University, 44(2163-2182), 43-52 (English) 1994. CODEN: TROUAI. ISSN: 0030-6177.

AB Chem. copolymns. of 3-dodecylthiophene and 1,2-dithienylethylene with different ratios of each monomers have been carried out. The obtained copolymers are dark red in color and sol. in various org. solvents, and show weak solvatochromism. The bandgap of the copolymer has been evaluated to be about 2.0 eV, which is the intermediate value between poly(3-dodecylthiophene) and poly(1,2-dithienylethylene). The effect of the geometrical isomer of the 1,2-dithienylethylene has been also investigated.

Isomerization of the cis- to the trans-vinylene group has been induced during the copolymer. Electrochem., optical, and magnetic properties upon electrochem. p-type doping have been also studied in detail. Changes in ESR and in situ optical absorption spectra suggest the formation of polaron and bipolaron upon doping, and considerable amts. of the newly derived species upon doping is concluded to change into p-type spinless bipolarons, even at lightly doped state. Energy levels of doped and undoped copolymer are also discussed.

IT 162128-67-8

(with trans structure; property of poly(3-alkylthiophene-co-1,2-dithienylethylene) and its doping effect)

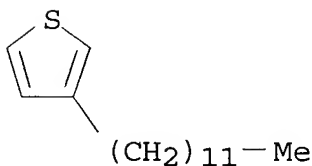
RN 162128-67-8 ZCA

CN Thiophene, 2,2'-(1,2-ethenediyl)bis-, polymer with 3-dodecylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 104934-52-3

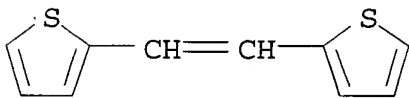
CMF C16 H28 S



CM 2

CRN 15332-30-6

CMF C10 H8 S2



IT 162128-67-8

(with trans structure; property of poly(3-alkylthiophene-co-1,2-dithienylethylene) and its doping effect)

L17 ANSWER 40 OF 40 ZCA COPYRIGHT 2003 ACS

122:133929 Routes towards three-dimensional fully conjugated conducting polymers: 1. Preparation of the kit of monomers. Rebourt, Eymard; Pepin-Donat, Brigitte; Dinh, Emmanuel (Departement de Recherche Fondamentale sur la Matiere Condensee, CEA, Grenoble, 38054, Fr.). Polymer, 36(2), 399-412 (English) 1995. CODEN: POLMAG. ISSN: 0032-3861. Publisher: Elsevier.

AB Several trithienylbenzenes were prepd. and characterized. These compds. are used as reticulation points in poly(3-n-octylthiophene).

It was necessary to study the reactivity of the reticulation points with regard to 3-n-octylthiophene. That is the reason why we have prep'd. copolymers starting from very high percentages of deuterated reticulation points (>20%) and monitored their reactivities following the evolution of the :C-D band in the IR spectra of the copolymers. The copolymers thus obtained contain from 10% to 30% of reticulation points. They swell in apolar solvents whereas the poly(reticulation point) (100% of reticulation points) does not swell. A low molar doping level ($\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$, <9%) leads to a non-negligible cond. (0.1 to 0.2 S cm^{-1}) of these copolymers. In the same conditions, the poly(reticulation point) cannot be doped and thus remains insulating.

IT 161299-91-8P

(prepn. and characterization and elec. cond. of ferric chloride-doped octylthiophene copolymer)

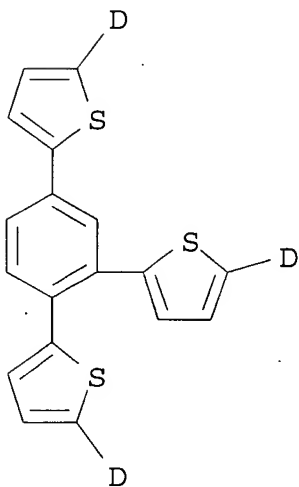
RN 161299-91-8 ZCA

CN Thiophene-2-d, 5,5',5''-(1,2,4-benzenetriyl)tris-, polymer with 3-octylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 161299-87-2

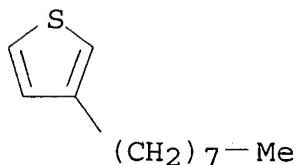
CMF C18 H9 D3 S3



CM 2

CRN 65016-62-8

CMF C12 H20 S



IT 161299-91-8P

(prepn. and characterization and elec. cond. of ferric chloride-doped octylthiophene copolymer)

=> d l22 1-8 cbib abs hitstr hitrn

L22 ANSWER 1 OF 8 ZCA COPYRIGHT 2003 ACS

138:107140 End Group Modification of Regioregular Polythiophene through Postpolymerization Functionalization. Liu, Jinsong; McCullough, Richard D. (Department of Chemistry, Carnegie Mellon University, Pittsburgh, PA, 15213, USA). *Macromolecules*, 35(27), 9882-9889 (English) 2002. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

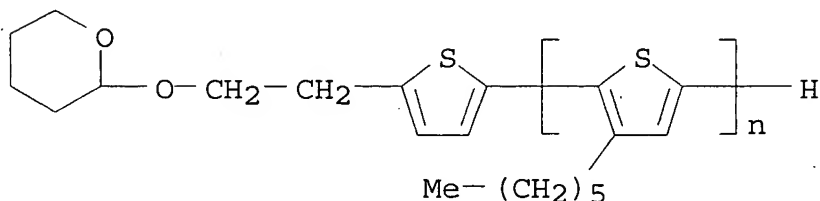
AB HT-poly(3-hexylthiophenes) (HT-PHT) with H/Br end group compn. were prepd. via a modified McCullough method using anhyd. ZnCl₂ for the transmetalation step. These bromine-terminated HT-PHT can be end group modified at the .omega. end through a cross-coupling reaction with thienylzinc compds. bearing a THP-protected hydroxy or STABASE-protected amino groups. After deprotection, HT-PHTs with -OH or -NH₂ functional groups at the .omega. end were obtained. In addn., HT-PHT with pure H/H end group compn. were also modified by treatment with Vilsmeier reagent and functionalized with formaldehyde groups at both the .alpha. and .omega. chain ends. Redn. of the formaldehyde groups produced the HT-PHT diol. MALDI-TOF is a powerful tool to monitor each step of these end group functionalizations.

IT 488149-04-8P 488149-06-0P

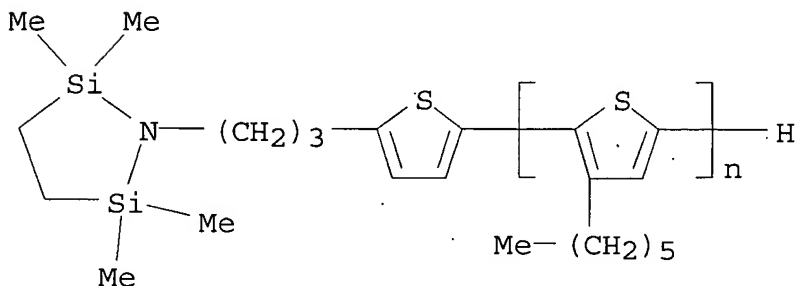
(prepn. of hydroxyalkyl, hydrogen, and formyl-terminated regioregular poly(3-hexyl)thiophene through postpolymn. functionalization)

RN 488149-04-8 ZCA

CN Poly(3-hexyl-2,5-thiophenediyl), .alpha.-[5-[2-[(tetrahydro-2H-pyran-2-yl)oxy]ethyl]-2-thienyl]-.omega.-hydro- (9CI) (CA INDEX NAME)

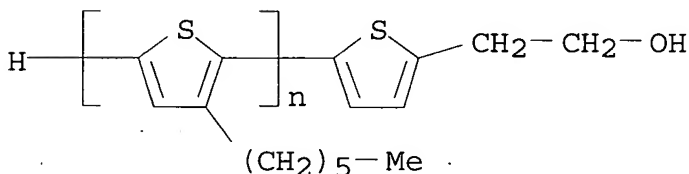


RN 488149-06-0 ZCA
 CN Poly(3-hexyl-2,5-thiophenediyl), .alpha.-[5-[3-(2,2,5,5-tetramethyl-1-aza-2,5-disilacyclopent-1-yl)propyl]-2-thienyl]-.omega.-hydro-(9CI) (CA INDEX NAME)

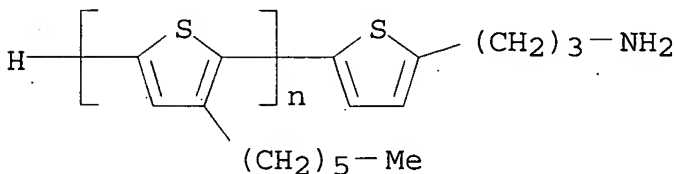


IT 488149-05-9P 488149-07-1P
 (prepn. of hydroxyalkyl, hydrogen, and formyl-terminated
 regioregular poly(3-hexyl)thiophene through postpolymn.
 functionalization)

RN 488149-05-9 ZCA
 CN Poly(3-hexyl-2,5-thiophenediyl), .alpha.-[5-(2-hydroxyethyl)-2-thienyl]-.omega.-hydro- (9CI) (CA INDEX NAME)



RN 488149-07-1 ZCA
 CN Poly(3-hexyl-2,5-thiophenediyl), .alpha.-[5-(3-aminopropyl)-2-thienyl]-.omega.-hydro- (9CI) (CA INDEX NAME)



IT 488149-04-8P 488149-06-0P
 (prepn. of hydroxyalkyl, hydrogen, and formyl-terminated
 regioregular poly(3-hexyl)thiophene through postpolymn.
 functionalization)

IT 488149-05-9P 488149-07-1P
 (prepn. of hydroxyalkyl, hydrogen, and formyl-terminated
 regioregular poly(3-hexyl)thiophene through postpolymn.
 functionalization)

L22 ANSWER 2 OF 8 ZCA COPYRIGHT 2003 ACS

136:295301 Mobilities of charge carriers hopping between .pi.-conjugated polymer chains. Jiang, Xiaoqing; Harima, Yutaka; Zhu, Lihua; Kunugi, Yoshihito; Yamashita, Kazuo; Sakamoto, Mune-aki; Sato, Masa-aki (Faculty of Integrated Arts and Sciences, Hiroshima University, Higashi-Hiroshima, 739-8521, Japan). Journal of Materials Chemistry, 11(12), 3043-3048 (English) 2001. CODEN: JMACEP. ISSN: 0959-9428. Publisher: Royal Society of Chemistry.

AB Mobilities of charge carriers in a polythiophene copolymer film where a possible charge transport is restricted to an interchain path are measured by electrochem. means with doping level as a parameter. The mobility in the low doping regime, corresponding to that of polarons, is $10^{-6} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$, comparable with polaron mobilities in polythiophene films where hopping transports via interchain and intrachain routes are both feasible. The coincidence suggests strongly a potential role of the interchain hopping transport in the conduction mechanism of common conducting polymers. As the doping level increases, the mobility falls down to 0.4 .times. $10^{-6} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$ and then rises up to 6 .times. $10^{-6} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$. Based on spectroelectrochem. measurements of the copolymer film, the decrease of the mobility is interpreted in terms of the generation of cation radical .pi.-dimers that are inactive in charge transport. The mobility increase in a high doping region is ascribed to some structural change of a polymer network, leading to enhancement of the interchain hopping probability.

IT 267409-62-1

(mobilities of charge carriers hopping between .pi.-conjugated polymer chains)

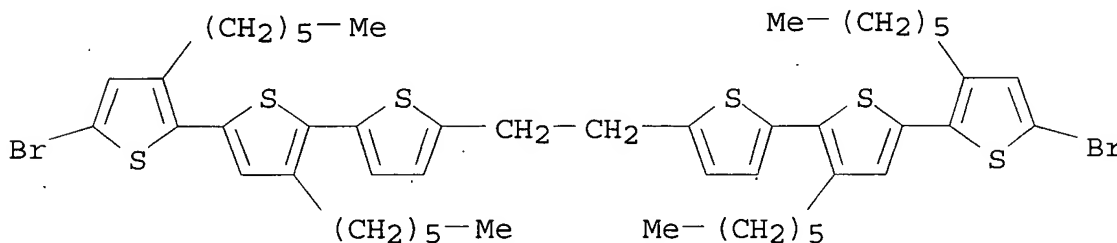
RN 267409-62-1 ZCA

CN 2,2':5',2''-Terthiophene, 5,5'''-(1,2-ethanediyl)bis[5'''-bromo-3',3'''-dihexyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 267409-59-6

CMF C50 H64 Br2 S6



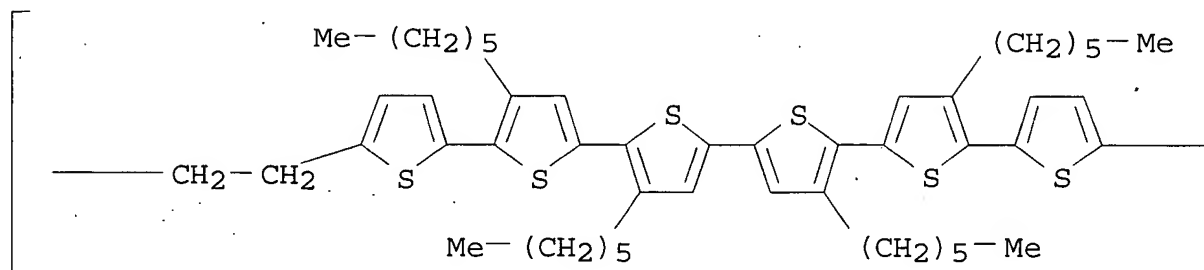
IT 267409-63-2

(mobilities of charge carriers hopping between .pi.-conjugated polymer chains)

RN 267409-63-2 ZCA

CN Poly[(3',3'',4''',4''''-tetrahexyl[2,2':5',2'':5'',2''':5''',2''''':5''''',2''''':5'''''-sexithiophene]-5,5''''''-diyl)-1,2-ethanediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

IT 267409-62-1
(mobilities of charge carriers hopping between .pi.-conjugated polymer chains)

IT 267409-63-2
(mobilities of charge carriers hopping between .pi.-conjugated polymer chains)

L22 ANSWER 3 OF 8 ZCA COPYRIGHT 2003 ACS

136:295191 Tuning the electrical conductivity and self-assembly of regioregular polythiophene by block copolymerization: nanowire morphologies in new di- and triblock copolymers. Liu, Jinsong; Sheina, Elena; Kowalewski, Tomasz; McCullough, Richard D. (Department of Chemistry, Carnegie Mellon University, Pittsburgh, PA, 15213-2683, USA). Angewandte Chemie, International Edition, 41(2), 329-332 (English) 2002. CODEN: ACIEF5. ISSN: 1433-7851. Publisher: Wiley-VCH Verlag GmbH.

AB Three well-defined diblock and triblock copolymers (PS-PHT, PS-PHT-PS, and PMA-PHT-PMA; PS = polystyrene, PMA = poly(Me acrylate), and PHT = poly(3-hexylthiophene)) and 1 polyurethane elastomer (based on PHT and toluene-2,4-diisocyanate) contg. regioregular polythiophenes with conductivities ranging from 4.6×10^{-5} to 110 S/cm were synthesized. The formation of nanowire

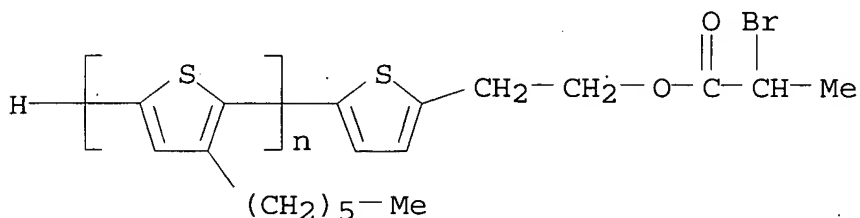
structures was obsd.

IT 408359-63-7P

(macromer; prepn. of polyhexylthiophene macroinitiator for block polymn.)

RN 408359-63-7 ZCA

CN Poly(3-hexyl-2,5-thiophenediyl), .alpha.-[5-[2-(2-bromo-1-oxopropoxy)ethyl]-2-thienyl]-.omega.-hydro- (9CI) (CA INDEX NAME)



IT 408359-63-7P

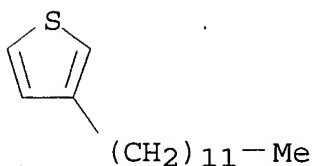
(macromer; prepn. of polyhexylthiophene macroinitiator for block polymn.)

L22 ANSWER 4 OF 8 ZCA COPYRIGHT 2003 ACS

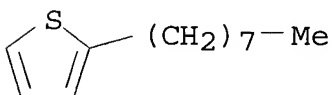
135:172299 Tunable optical properties of conducting polymers infiltrated in synthetic opal as photonic crystal. Yoshino, K.; Satoh, S.; Shimoda, Y.; Kajii, H.; Tamura, T.; Kawagishi, Y.; Matsui, T.; Hidayat, R.; Fujii, A.; Ozaki, M. (Department of Electronic Engineering, Graduate School of Engineering, Osaka University, Osaka, Japan). Synthetic Metals, 121(1-3), 1459-1462 (English) 2001. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

AB Various org. materials such as conducting polymers, insulating polymers, dyes, liq. crystals and carbons were infiltrated in synthetic opals made by sedimentation of SiO₂ spheres. Optical properties of the opals exhibit drastic changes upon these infiltration. By removing SiO₂ with HF, replicas of opals was prepd. with the infiltrated materials. Optical properties of synthetic opals infiltrated with conducting polymers are tuned by various factors such as temp. and electrochem. doping in synthetic opals infiltrated with poly(3-alkylthiophene). These tunabilities were interpreted in terms of the change of refractive index by temp. and doping. Tuning of the optical properties by various factors were also demonstrated in the opal replicas. Polymer opals made of polymer spheres of several hundreds nanometer in diam. also were prepd. and the mech. tuning was demonstrated. Upon optical excitation of the synthetic opals infiltrated with conducting polymers and fluorescent dyes, spectral narrowing and lasing were obsd. The behaviors are dependent on the emission wavelength and the periodicity of the opals and the solvents used for infiltration. Two-dimensional periodic structures were also fabricated upon irradiation of interfering optical beams on photo-polymers with azobenzene moieties in the side chains containing conducting polymers, in which directional PL emission were demonstrated.

IT 352201-41-3, 3-Dodecylthiophene-2-octylthiophene copolymer
 (tunable optical properties of conducting polymers infiltrated in
 synthetic opal as photonic crystal)
 RN 352201-41-3 ZCA
 CN Thiophene, 3-dodecyl-, polymer with 2-octylthiophene (9CI) (CA
 INDEX NAME)
 CM 1
 CRN 104934-52-3
 CMF C16 H28 S



CM 2
 CRN 880-36-4
 CMF C12 H20 S



IT 352201-41-3, 3-Dodecylthiophene-2-octylthiophene copolymer
 (tunable optical properties of conducting polymers infiltrated in
 synthetic opal as photonic crystal)

L22 ANSWER 5 OF 8 ZCA COPYRIGHT 2003 ACS

135:137954 Temperature and voltage dependent optical properties of
 conducting polymer in synthetic opal as photonic crystal. Satoh,
 S.; Kajii, H.; Kawagishi, Y.; Tamura, T.; Fujii, A.; Ozaki, M.;
 McCullough, R. D.; Yoshino, K. (Department of Electronic
 Engineering, Graduate School of Engineering, Osaka University,
 Suita, Osaka, 565-0871, Japan). Synthetic Metals, 121(1-3),
 1503-1504 (English) 2001. CODEN: SYMEDZ. ISSN: 0379-6779.
 Publisher: Elsevier Science S.A..

AB Conducting polymers can be infiltrated into a nanoscale
 interconnected regular array of voids in synthetic opal. The
 optical properties such as transmission and reflection spectra of
 the synthetic opal infiltrated with conducting polymers have been
 found to change drastically by changing temp. and voltage. Their
 mechanism is interpreted to be based on the temp. dependence of
 refractive index assocd. with the thermochromism and electrochem.
 doping in conducting polymers. In this synthetic opal infiltrated
 with conducting polymers, the optical properties have been confirmed

to be tunable by adjusting various conditions such as temp. and applied voltage.

IT 352201-41-3
(temp. and voltage dependent optical properties of conducting polymer in synthetic opal as photonic crystal)

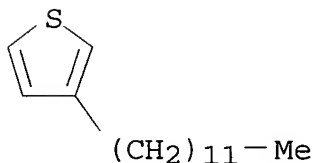
RN 352201-41-3 ZCA

CN Thiophene, 3-dodecyl-, polymer with 2-octylthiophene (9CI) (CA INDEX NAME)

CM 1

CRN 104934-52-3

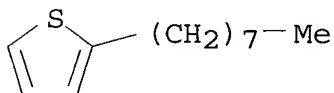
CMF C16 H28 S



CM 2

CRN 880-36-4

CMF C12 H20 S



IT 352201-41-3
(temp. and voltage dependent optical properties of conducting polymer in synthetic opal as photonic crystal)

L22 ANSWER 6 OF 8 ZCA COPYRIGHT 2003 ACS

132:334959 Soluble polymers with constant .pi.-conjugation length: polymers containing thiophene tetramers and hexamers. Sato, M.-A.; Sakamoto, M.-A.; Miwa, M.; Hiroi, M. (Faculty of Mercantile Marine Science, Kobe University of Mercantile Marine, Kobe, 658-0022, Japan). Polymer, 41(15), 5681-5687 (English) 2000. CODEN: POLMAG. ISSN: 0032-3861. Publisher: Elsevier Science Ltd..

AB Sol. polymers (PQE and PSE) having const. .pi.-conjugation length, contg. thiophene tetramers and hexamers in the main chains, were prepd. by reductive condensation, resp. The obtained polymers were sol. in common org. solvents. Cast films could be obtained from their solns. The PQE and PSE films doped with FeCl₃ showed considerable conductivities, 9-7 .times. 10⁻³ and 0.4-0.2 S cm, resp. The polymer solns. and films were oxidized (doped) by stepwise addn. of FeCl₃ and characterized by electronic absorption spectra. The spectral change of the PQE solns. and films showed

one-step oxidn. to produce cation radicals, whereas that of the PSE solns. and films did two-step oxidn. to yield cation radicals in the first step and plural-electron-oxidized species such as dications in the second step. In atmosphere, the plural-electron-oxidized species of the PSE films are extremely labile. The spectra of the oxidized PSE films in atm. were almost similar to that of doped polythiophene films, indicating that oxidized species existing in doped polythiophenes are mainly cation radicals.

IT 267409-60-9P 267409-61-0P 267409-62-1P
267409-63-2P

(prepn. and properties of polymers contg. thiophene tetramers and hexamers)

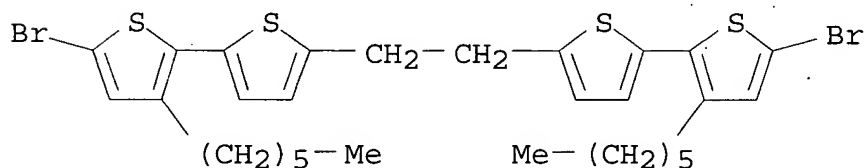
RN 267409-60-9 ZCA

CN 2,2'-Bithiophene, 5,5''-(1,2-ethanediyl)bis[5'-bromo-3'-hexyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

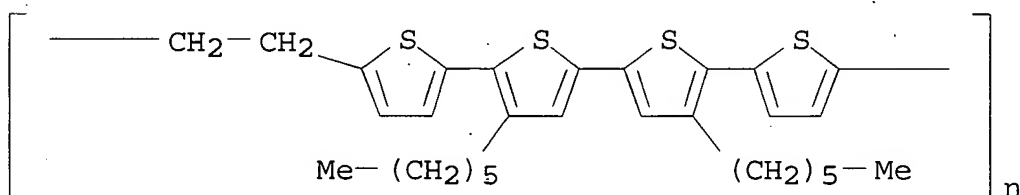
CRN 267409-57-4

CMF C30 H36 Br2 S4



RN 267409-61-0 ZCA

CN Poly[(3',4''-dihexyl[2,2':5',2'':5'',2''':5'''-quaterthiophene]-5,5'''-diyl)-1,2-ethanediyl] (9CI) (CA INDEX NAME)



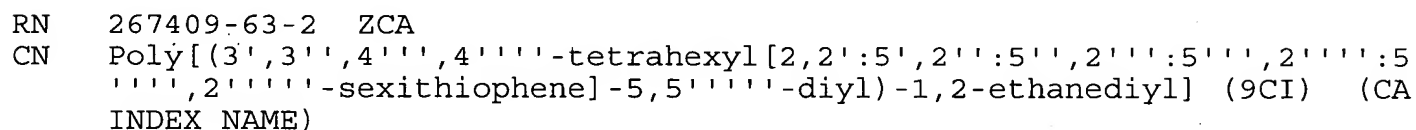
RN 267409-62-1 ZCA

CN 2,2':5',2''-Terthiophene, 5,5'''-(1,2-ethanediyl)bis[5''-bromo-3',3'''-dihexyl-, homopolymer (9CI) (CA INDEX NAME)

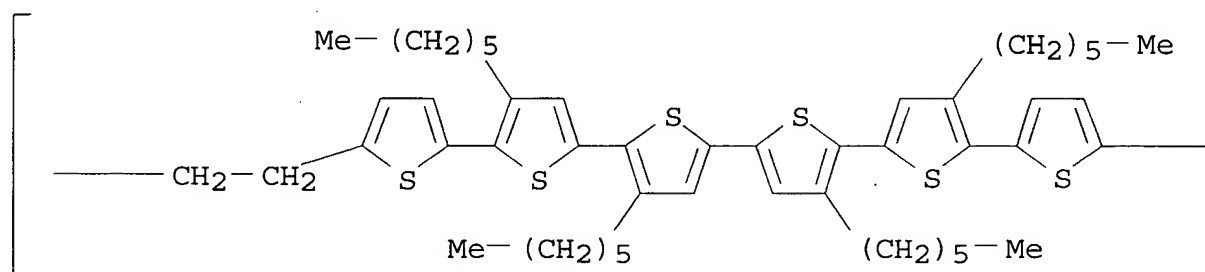
CM 1

CRN 267409-59-6

CMF C50 H64 Br2 S6



PAGE 1-A



PAGE 1-B



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126:278093 Electrochemical polymerization of bis(bithienyl)ethanes.
Sato, M.; Miwa, Masayuki; Liu, Guoyi; Hiroi, Masao (Department of
Ocean Electro-Mechanical Engineering, Kobe University of Mercantile
Marine, 5-1-1, Fukae-Minami Higashinada, Kobe, 658, Japan).

Synthetic Metals, 84(1-3), 351-352 (English) 1997. CODEN: SYMEDZ.
ISSN: 0379-6779. Publisher: Elsevier.

AB Poly(quaterthienyl ethylene) and poly(alkyl-substituted quaterthienyl ethylene) contg. quaterthiophene unit in the main chains were synthesized by electrochem. polymn. of 1,2-bis(2,2'-bithiophene-5-yl)ethane or its alkyl deriv., resp. The obtained green films had high conductivities, ca. 2×10^{-2} S-cm⁻¹, in oxidized states. IR spectra of the neutral films showed formation of predominantly linear, α - α' -linked chains during polymn.

IT 178931-57-2P
(electrochem. polymn. of bis(bithienyl)ethanes and elec. properties)

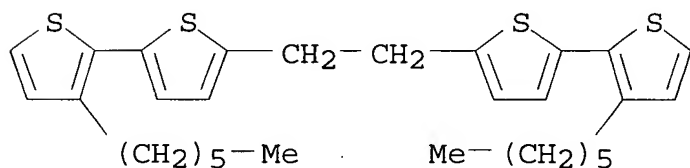
RN 178931-57-2 ZCA

CN 2,2'-Bithiophene, 5,5''-(1,2-ethanediyl)bis[3'-hexyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 178931-56-1

CMF C30 H38 S4



IT 178931-57-2P
(electrochem. polymn. of bis(bithienyl)ethanes and elec. properties)

L22 ANSWER 8 OF 8 ZCA COPYRIGHT 2003 ACS

125:87400 Preparation of a polymer with limited π -conjugation length: a polymer containing quaterthiophene units. Sato, Masa-aki; Hiroi, Masao (Dep. Ocean Electro-Mechanical Engineering, Kobe Univ. Mercantile Marine, Higashinada, 658, Japan). Chemistry Letters (6), 495-496 (English) 1996. CODEN: CMLTAG. ISSN: 0366-7022. Publisher: Nippon Kagakkai.

AB A polymer contg. quaterthiophene units in the main chain was prep'd. by electrochem. polymn. of 1,2-bis(3'-hexyl-2,2'-bithiophen-5-yl)ethane. The green film had cond. 2×10^{-2} S cm⁻¹ in oxidized states and was neutralized by immersion in MeOH. The cyclic voltammograms of the neutral film showed only an oxidn. process in the first cycle.

IT 178931-57-2P
(prepn. and properties of quaterthiophene-contg. polymers)

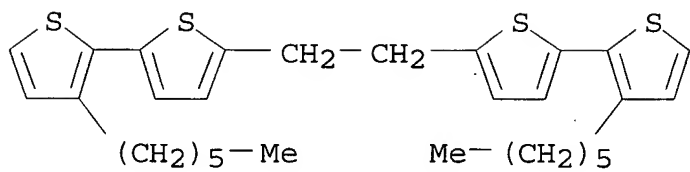
RN 178931-57-2 ZCA

CN 2,2'-Bithiophene, 5,5''-(1,2-ethanediyl)bis[3'-hexyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 178931-56-1

CMF C30 H38 S4

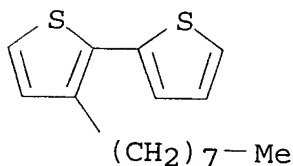


IT 178931-57-2P

(prepn. and properties of quaterthiophene-contg. polymers)

absorption spectroscopy, and a cryst. packing of the polymer chains are not found to be interdependent. For the polymer with highest degree of crystallinity two surprisingly different cryst. structures were found for the two versions with different regularity, viz. poly(3-octylthiophene) and poly(3,3'-dioctyl-2,2'-bithiophene). For the latter the authors find evidence of a polymer chain twist between adjacent head-to-head coupled thiophene rings, and we propose a structural model for its cryst. packing. The new model can explain previously measured differences in spectroscopic and transport-related properties for these two stoichiometrically identical polymers.

IT 150504-16-8, Poly(3-dioctyl-2,2'-bithiophene)
 (x-ray structural studies of various octyl-substituted polythiophenes)
 RN 150504-16-8 ZCA
 CN 2,2'-Bithiophene, 3-octyl-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 150504-15-7
 CMF C16 H22 S2



IT 150504-16-8, Poly(3-dioctyl-2,2'-bithiophene)
 (x-ray structural studies of various octyl-substituted polythiophenes)

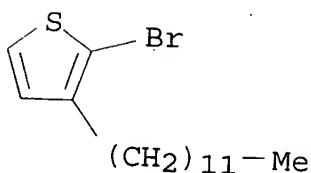
L15 ANSWER 38 OF 51 ZCA COPYRIGHT 2003 ACS
 122:161603 The tuning of conjugation by recipe: the synthesis and properties of random head-to-tail poly(3-alkylthiophene) copolymers. McCullough, Richard D.; Jayaraman, Manikandan (Dep. Chem., Carnegie Mellon Univ., Pittsburgh, PA, 15213-3890, USA). Journal of the Chemical Society, Chemical Communications (2), 135-6 (English) 1995. CODEN: JCCCAT. ISSN: 0022-4936. Publisher: Royal Society of Chemistry.

AB Regioregular head-to-tail coupled poly(3-alkylthiophene) random copolymers were prep'd. and show that the conjugation can be tuned by variation of the length and relative ratios of the alkyl side chains.

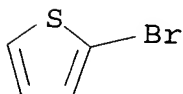
IT 161534-50-5P, 5-Bromo-4-dodecyl-2-thiophene-5-bromothiophene copolymer
 (prepn. and properties of regioregular head-to-tail alkylthiophene random copolymers)

RN 161534-50-5 ZCA
 CN Thiophene, 2-bromo-3-dodecyl-, polymer with 2-bromothiophene (9CI) (CA INDEX NAME)

CM 1

CRN 139100-06-4
CMF C16 H27 Br S

CM 2

CRN 1003-09-4
CMF C4 H3 Br S

IT 161534-50-5P, 5-Bromo-4-dodecyl-2-thiophene-5-bromothiophene
copolymer
(prepn. and properties of regioregular head-to-tail
alkylthiophene random copolymers)

L15 ANSWER 39 OF 51 ZCA COPYRIGHT 2003 ACS

122:106693 Electrochemical polymerization of 3-alkyl-2,2'-bithiophene.
Masuda, Hideyuki; Kaeriyama, Kyoji; Suezawa, Hiroko; Hirota, Minoru
(Ind. Res. Inst. Kanagawa Prefect., Yokohama, 236, Japan). Kenkyu
Hokoku - Kanagawa-ken Kogyo Shikensho, Volume Date 1993, 64, 68-73
(Japanese) 1994. CODEN: KKSKAU. ISSN: 0451-3169.

AB Grignard coupling of 3-bromo-2,2'-bithiophene with $Me(CH_2)_nMgBr$ ($n = 11$ and 5) gave 3-dodecyl-2,2'-bithiophene (I) and 3-hexyl-2,2'-bithiophene (II), resp. These bithiophenes were electrochem. polymd. in $Bu_4NBF_4/MeCN$ to form elec. conductive films. The cond. of I homopolymer and II homopolymer films were 1.3 and 1.4 S/cm, resp., which were comparable to that of poly(2,2'-bithiophene) film. Absorption spectra of the films in the as-grown state were similar to each other. The spectral change of I homopolymer film by electrochem. doping was different from that of polythiophene film. Solvent effect on the spectrum of I homopolymer film was also described.

IT 119889-86-0P, Poly(3-dodecyl-2,2'-bithiophene)
141105-21-7P, Poly(3-hexyl-2,2'-bithiophene)
(prepn. and elec. cond. of poly(3-alkyl-2,2'-bithiophene) films)
RN 119889-86-0 ZCA
CN 2,2'-Bithiophene, 3-dodecyl-, homopolymer (9CI) (CA INDEX NAME)